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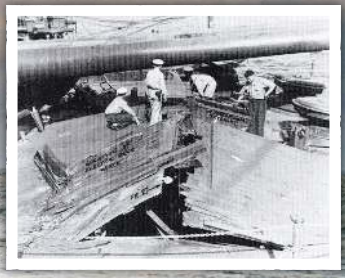
THE DUKE-CLASS T23 FRIGATE

WORKHORSE OF THE FLEET



THE BOMBING OF PEARL HARBOR

AN OVERLOOKED ASPECT

SMS Viribus Unitis

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USS SOUT

BB-57

South Dakota **was the lead ship of the four South Dakota-class fast battleships and saw extensive action during the Second World War. The ship also carried the youngest US serviceman to serve and fight during the Second World War – 12-year-old Calvin Graham (who had lied about his age) was a loader on one of the 40mm anti-aircraft guns and was hit by shrapnel during the Second Battle of Guadalcanal. He survived the war and died in 1992 aged 62.**

1939

South Dakota's keel was laid down on 5 July at the New York Shipbuilding Corporation in Camden, New Jersey.

1941

Launching of the ship was on 7 June.

1942

Dakota was commissioned on 20 March and took part in two battles during the year – the Battle of Santa Cruz, fought between the US and the IJN. It proved a tactical victory for the Japanese but the loss of many experienced air-crew proved a long term advantage for the Allies. The Second Naval Battle of Guadalcanal in which *Dakota* was badly damaged ended in an overall victory for the Allies against the Imperial Japanese Navy.

1943

After repairs, *Dakota* served in the Pacific with the fast carrier task force and took part in the Gilbert and Marshall Islands campaign, a series of battles against the Japanese with approximately 5,000 US killed or missing to the approximate 20,000 Japanese deaths.

South Dakota's impressive forward turrets.

H DAKOTA

1944

During the year, *Dakota* took part in the Mariana and Palau Islands campaign in the Pacific theatre, another overwhelming defeat for the IJN with the loss of 60,000+ lives to 8,000 US. She was also a part of the major naval battle of the war in the Battle of the Philippines Sea where the combined forces of the US and Filipinos fought to take over the Philippine Islands from the Japanese. The result eliminated the Japanese Navy's ability to conduct large-scale carrier actions.

1945

Dakota played her part in two more battles during the year, the Battle of Iwo Jima and Okinawa where she bombed Japan on three occasions.

1946

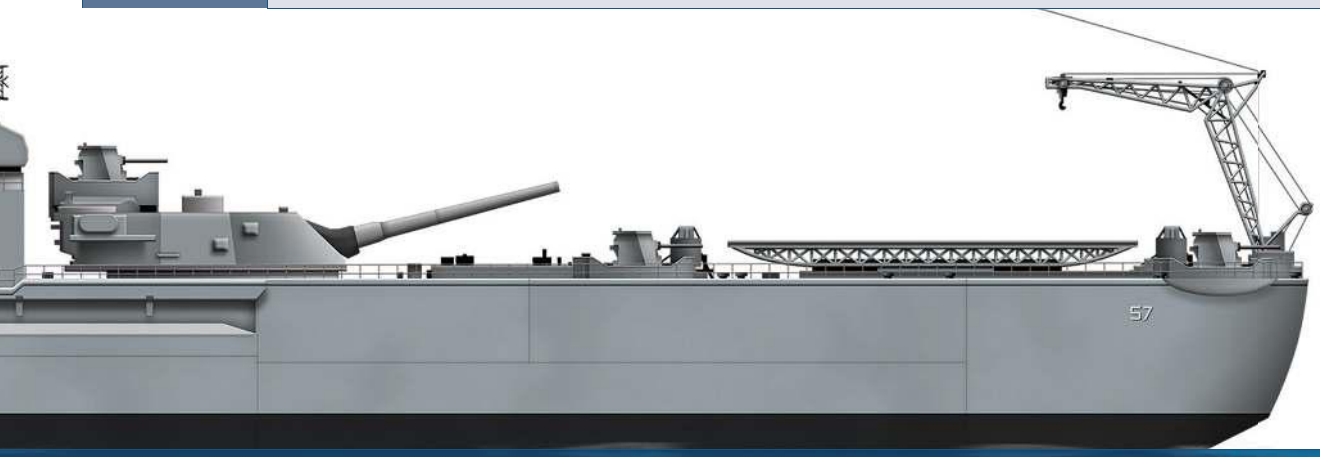
USS *South Dakota* became the flagship of the reserve unit in the Fourth Fleet.

1947

The Fourth Fleet was disbanded and *South Dakota* was decommissioned on 31 January and laid up in the Atlantic Reserve Fleet.

USS *South Dakota* BB-57, in Iceland during 1943.

SPECIFICATION	
Dimensions	Length 680ft., Beam 108.2ft., Draught 36.3ft., Surface displacement 35,000 tons.
Propulsion	4x oil-fired boilers, 4x shafts.
Speed/Range	Speed 27.8knots, 32mph., Range 14,773nm, 17,000 miles.
Complement	2,364.
Firepower	9x 16in/45 calibre Mark 6 main guns.
	16x 5in/38 calibre guns.
	68x 40mm anti-aircraft cannons.
	40x 20mm anti-aircraft cannons.
Air wing	2x OS2U Kingfisher observation floatplanes.



1956-57

Plans to convert *Dakota* into a guided-missile battleship proved too expensive.

1962

Dakota was struck from the Naval Vessel Register on 1 June. She was then sold to the Lipsett Division of Luria Brothers and Co. to be broken for scrap.

1969

Thanks to the Sioux Falls Chamber of Commerce, parts of the ship were kept as a memorial.
Other artifacts from the ship are on display at the National Museum of the US Navy in Willard Park, Washington D.C.

South Dakota fires at a Japanese torpedo bomber during the Battle of Santa Cruz.

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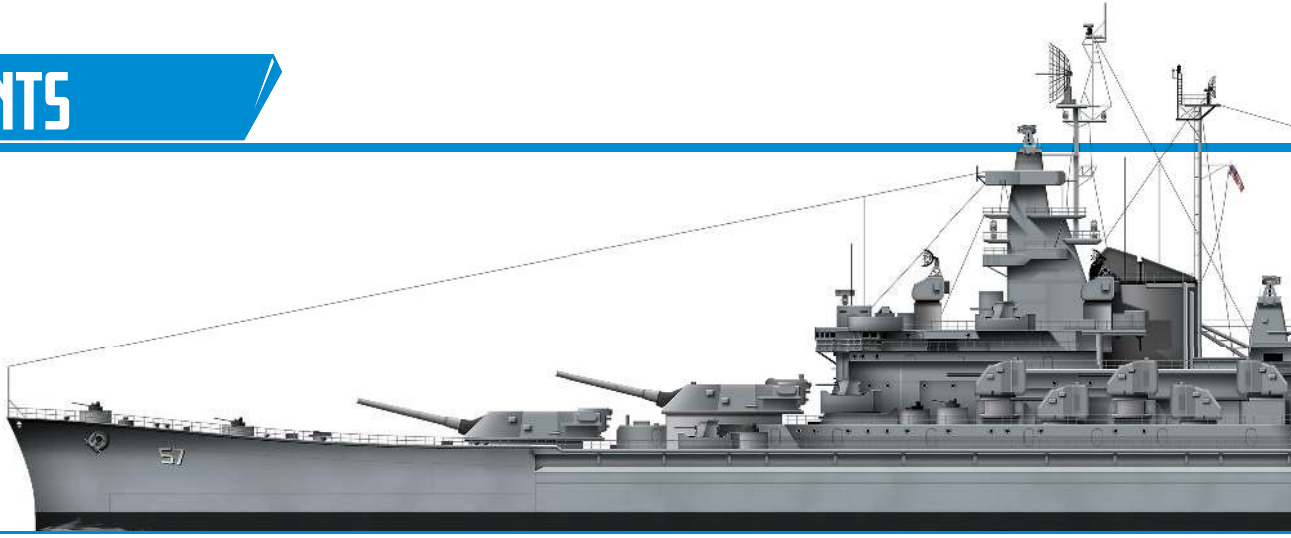

Welcome

Welcome to the 15th issue of *World of Warships*.

In this issue we have the very latest news from around the world, plus, Part 3 of Scapa Flow, where the German High Seas Fleet surrendered and then scuttled their own ships.

Also this month, as the Royal Navy has ordered new state-of-the-art frigates to meet the requirements of future naval warfare, David Reynolds looks at the present day Duke-class T23 frigates which have served as reliable workhorses to the fleet. Paul Baker gives his account on the sinking of the *Konigsberg*, while Mike Williams writes about an Austro-Hungarian dreadnought, SMS *Viribus Unitis*.

New writer to *World of Warships*, Richard J. Geshel, DO LCDR, MC, USN (RET), gives us his view on an overlooked aspect of the Pearl Harbor bombing.

While regular contributor Derek Fox, ventures into the upper reaches of Portsmouth harbour to discover the old Second World War warship HMS *Volage*, which had settled deep in the mud alongside a local scrap yard. Other ships this month include, USS *South Dakota*, HMS *Brilliant* and the North Korean *Sang-O-class* of submarines. Plus we have more excellent artworks from Andy Hay and Don MacMillan.

Do get involved with the magazine by emailing me at **wowm.ed@kelsey.co.uk**

The magazine is available from WH Smith and all good newsagents or see pages 46-47 for an enticing subscription offer.

Enjoy the mag.

Charles Waters
Editor

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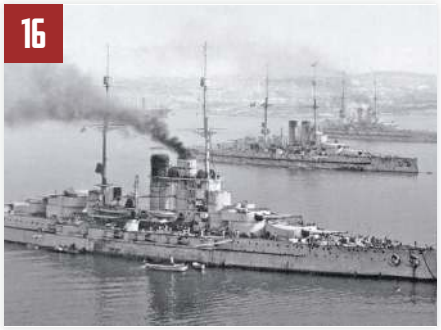

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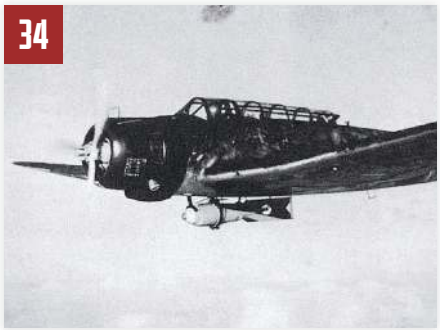

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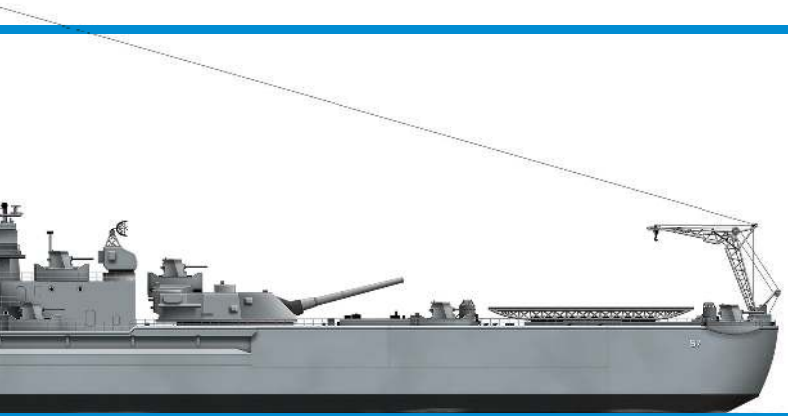

ON THE COVER: HMS *Westminster* pictured at speed, before she underwent her initial overhaul to her system and 4.5in gun. Picture DPL
ON THE BACK: USS *Maine*: Don MacMillan

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16 SMS VIRIBUS UNITIS
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22 THE SINKING OF THE KONIGSBERG
The German invasion of Norway, Operation Weserübung, was as swift as it was decisive. It also, to some degree, caught the British off guard and saw the Royal Navy hurriedly put a counter offensive into operation writes Paul Baker.

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New contributor to *World of Warships*, Richard J. Geshel, DO, has extensively researched the bombing of Pearl Harbor and here he highlights what he believes is a deliberate overlooked aspect of the infamous event.

42 HMS VOLAGE
During the 1980s, Portsmouth Naval base was home to the Royal Navy's latest warships. Alongside its jetties were the newest aircraft carriers, destroyers and frigates, but if a visitor had ventured further into the upper reaches of the harbour in among the tidal creeks, they would have discovered an old Second World War warship as did Derek Fox.

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One of four in class amphibious assault landing craft built for the French Navy.

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The Type 22 frigate took part in the only ship-to-ship conflict during the 1982 Falklands War and in 1996, HMS *Brilliant* was sold to Brazil and renamed *Dodsworth*.

World of Warships Magazine
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Senior Print Production Manager: Nicola Pollard
Print Production Manager: Georgina Harris
Print Production Controller: Kelly Orriss
DISTRIBUTION
Seymour Distribution Ltd, 2 East Poultry Avenue, London, EC1A 9PT
www.seymour.co.uk
Tel: 020 7429 4000
PRINTING
PCP, Telford

Published: October 30, 2019
ISSN: 9 772516 757006

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NEWS

LITTORAL STRIKE CONCEPT

The UK Royal Navy is making major changes to its amphibious tactics and changing the image of its future commando force in a concept that will see 'littoral strike' as the new bespoke approach to maritime operations, with ships regularly deployed in the Mediterranean and the Middle East.

Just over a year ago, the helicopter carrier HMS *Ocean* was sold off sparking concern that the UK fleet's amphibious capability may face cut backs as the Ministry of Defence faces fiscal challenges across all departments as the two new Queen Elizabeth-class carriers take operational priority.

Then earlier this year the then defence secretary Gavin Williamson, announced a plan to procure a new class of littoral strike ships for the Royal Navy which would provide the backbone to support a new future commando force.

Now the head of the Royal Marines, Major General Matt Holmes, the Commandant General of the Corps, has revealed major changes to operational capability, which from 2023 will see the force permanently 'forward deployed' to potential trouble spots across the globe. He said: "The scale and ambition of our transformation is significant. Nothing is off-limits and we aspire to be at the cutting edge of defence."

In what will be called the Littoral Strike Group (LSG) two units, each comprising up to three amphibious ships would be deployed and pending the operational situation the Royal Navy will assign a Queen Elizabeth-class aircraft carrier to bolster the force with embarked F-35Bs.

The plan will see greater focus on areas such as the arctic and the Middle East, with marines based aboard ships ready to respond, with the new approach based around smaller force numbers as opposed to the Cold War and more recent insurgency fighting which demanded concentration of force.

This will manifest itself with a reduction in the number of marines in a Troop (Platoon) from 30 to 16. At the same time the use of autonomous systems will be widely adopted to provide a 'ghost' force. Remote controlled raiding craft will be used to provide 'avatar' marines who will be used to initiate 'deception operations' while the human marines strike elsewhere.

In the future, combat functions that were fielded traditionally at the company level by a 12 to 16 Royal Marine team, which will gain increased mobility, situational awareness and support from F-35B aircraft. The team will also be able to integrate more closely with special operations forces. Commodore James Parkin, who commands the UK's Amphibious Task Group – which will be rebranded as a Littoral Strike Group (LSG) before the end of 2019 – said proposals for the new ships, announced by the defence secretary in February, are now at the concept and assessment phase. It is anticipated that the Commando Brigade will transform to a special maritime operations brigade – delivering bespoke security alongside the Royal Navy.

Additional changes will see Royal Marine officers adopting naval rank insignia as the Navy moves to ensure that the Royal Marines are more visually closely part of the senior service, which will also see the commandos issued with a bespoke camouflage fatigue uniform different from the current disrupted pattern uniform currently worn by both the Army and the Royal Marines.

Meanwhile, off the east coast of the United States HMS *Queen Elizabeth* has been undertaking a second phase of F 35B trials. These trials are aimed at 'end-to-end' testing of the aircraft and personnel to ensure the aircraft are compatible with the carrier. The tests involve mission planning, arming the aircraft using the ship's Highly Automated Weapon Handling System, flying missions and debriefing on completion.

The landings on HMS *Queen Elizabeth* are part of the 'Westlant 19' Carrier Strike Group deployment.

The trials will be led by the joint Royal Navy/ Royal Air Force 17 Test and Evaluation Squadron, from the Air Warfare Centre. The Squadron will be operating alongside personnel and aircraft from the UK Lightning Force, based out of RAF Marham. On current planning the UK will declare Initial Operating Capability (IOC) for Carrier Strike by the end of 2020. The first operational deployment for HMS *Queen Elizabeth* 617 Squadron and a squadron of US Marine Corps Lightning jets is due to take place in 2021.

An artist's impression of a new Littoral Strike ship. RN

RIGHT: The sale of HMS *Ocean* caused concerned that the fleet's amphibious capability was being diluted. DPL

BELOW: HMS *Queen Elizabeth* pictured off the eastern seaboard of the United States during sea trials in which the first UK fighter landed on board in October. RN

GREEK ACCIDENT

The Hellenic Navy frigate *Elli* (F-450) which ran aground in the North West Aegean sea. Hellenic Navy

The Hellenic Navy frigate *Elli* (F-450) ran aground off the island of Samothraki, as it was taking part in amphibious exercises in the North West Aegean sea. The wargames, codenamed Parmenion, are part of annual maritime exercises to test the fleet's readiness. It is unclear what damage was sustained to the ship's hull. In a separate move Greek defence ministers have signed a letter of intent with France that will pave the way for further talks about Greece's acquisition of French-designed Belharra-class frigates.

Belharra, the export version of the FTI (Fregate de Taille Intermediaire) that is being built for the French Navy, who have ordered five with the first ship delivery set for 2025. The 4,000-tonne frigates feature an inverted bow design for greater stability at high speeds. It is understood that Greece is also involved in preliminary talks to buy Adelaide frigates from the Royal Australian Navy.

RUSSIA'S EXPANDING INFLUENCE

The huge hovercraft used by Russian forces. Russian MoD

The Russian Navy will get an additional 16 warships, according to the country's United Shipbuilding Corporation that has been contracted by the defence department to deliver the vessels – although they will not all be new.

Defence Minister Sergei Shoigu said that the Navy was to get seven new combat ships, including four submarines and seven repaired ones. Among the repair projects, at the Yantar Shipyard on the Baltic coast, the world's largest air-cushion amphibious assault ship *Mordovia*. The Project 12322 'Zubr' air-cushion small amphibious assault ship *Mordovia* entered service with the Baltic Fleet in October 1991. The ship's role is to provide heavy sealift support to amphibious operations.

The warship can also transport and deploy sea mines. The air-cushion design allows the ship to move over the ground. The warship can transport three tanks or ten armoured personnel carriers or eight infantry fighting vehicles. But the huge radar signature of the Zubr makes them unsuitable for covert operations and they require significant logistical support in fuel and maintenance.

Across the globe, Putin's naval forces are expanding their global footprint with military drills in the Far East, visits to Thailand and refuelling stops in Greece and Spain – both Nato members. The *Varyag* missile cruiser and the *Admiral Panteleyev*, an anti-submarine ship, called at Sattahip naval base in Thailand in late October during the first phase of a three-month deployment. In the Sea of Japan, warships from the Pacific Fleet held an air defence drill to repel a notional enemy's air attack.

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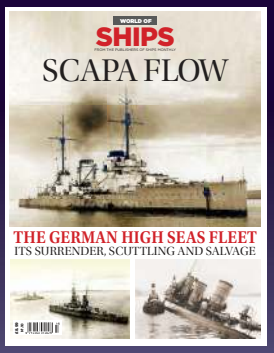

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A Minerva-class corvette of the Italian Navy-the class is being decommissioned. Italian MoD

ITALIAN

The Italian Navy has retired the last of its Minerva-class corvettes – decommissioning ITS *Driade* and ITS *Minerva*, who have both served 30-years service. The move to dispose of the ships comes as the navy takes the first steps in a wider plan to downsize an ageing fleet. The Italian navy started decommissioning ships in 2015, with an initial four warships being sold to Bangladesh. The fleet will also decommission Maestrale-class frigates, patrol vessels and minesweepers cutting the size of the force by 65% within the next ten years. The retired units will be replaced by the offshore patrol ships.

ROMANIA

The Romanian Navy is to buy four new French Gowind multi-mission corvettes. The ships will be built in Romania under a transfer of technology agreement between the French company Naval Group and Romanian shipyards. In a statement the French company said: "Naval Group and SNC's offer is based on the complementarities of their partnership, which will ensure Romania's sovereignty and autonomy since SNC will receive the necessary know-how to support the complete life cycle of the corvettes, from building to maintenance and modernization."

The Romania Navy is to buy four French Gowind class corvettes. The same class was sold to the Egyptian Navy, pictured. French MoD

EXERCISE GRIFFIN STRIKE, THE MARITIME PHASE OF JOINT WARRIOR

The UK has hosted the largest military exercise in Europe, involving more than 12 European countries and designed to test joint maritime defensive capabilities within the Anglo-French Combined Joint Expeditionary Force (C-JEF), which both countries have been developing since 2010. Officially called Joint Warrior, the naval phase of the manoeuvres was listed as Exercise Griffin Strike. More than 4,000 troops, 58 aircraft, 16 ships and three submarines from 12 NATO nations as well as observers from Japan and the United Arab Emirates. This is the first of five Anglo-French Combined Joint Expeditionary Force (C-JEF) exercises before confirming it is fully operational by next summer. Joint Warrior is a biannual exercise that allows the UK's Royal Navy, Army, Royal Air Force and their allies to conduct joint operations involving different forces and units and against a range of current and future threats. Minister for the Armed Forces Mark Lancaster said: "As we look ahead to the December NATO Leaders' meeting in London to mark the Alliance's 70th anniversary, Exercise Joint Warrior provides a timely demonstration of why it is the bedrock of our defence. A wide spectrum of allies and friends will come together, build understanding and sharpen our collective defence. We are stronger and safer together."

Since 2010, the UK and France have been working together to develop the C-JEF to be an early intervention able to deploy land, air and maritime components together and number over 10,000 people with a range of capabilities. It is designed to take on any future crisis that is of common concern to France and the UK.

ABOVE, LEFT TO RIGHT: Inside the operations room of the Type 23 frigate HMS *Sutherland*. / The assault ship HMS *Albion* heads the C-JEF warships during the naval wargames. / Royal Navy Merlin helicopter lifting off to support the exercise. / French marines going ashore in a Royal Navy landing craft. / HMS *Albion* acted as the command and control platform for UK forces during the exercise. / The frigate HMS *Sutherland* which took part in anti-submarine operations during the exercise.

Message in a bottle

Send your letters to the editor: – wowm.ed@kelsey.co.uk

I have been advised to contact you by my nephew David Hall who is known to you from the articles he has written for *Heritage Commercials* magazine.

I am the only offspring of John William Steer who during the Second World War, was a Lance Sergeant acting as one of the Gunners on Merchant Shipping. He was born on 2 April 1904, in a hamlet called No Place near Beamish in Co. Durham. After a troubled childhood, John joined the East Yorkshire Regiment on 21 November 1924, and spent time in Egypt and India before being part of the BEF. After being evacuated from Dunkirk he elected to join the Merchant Fleet as a Gunner.

We know that he had Survivor's Leave on three occasions in August 1941, December 1942 and March 1943. His Medals were:-

- ★ 1939-45 Star
- ★ Atlantic Star
- ★ Africa Star
- ★ Burma Star – Pacific Clasp
- ★ Defence Medal
- ★ War Medal 1939-45

John William Steer was released from the First Maritime Royal Artillery on 31 October 1945, in Lochwinnoch.

Sadly, we don't have his medals as they were stolen from my house. Dad never talked about the Second World War and we were told that we should never ask him what he did. David Hall was just a little boy in the 1950s and spent a lot of time with my dad when he was working in his allotment.

Dad passed away on 19 December 1967, and afterwards David told us all about some of the things his grandad had told him. Once his ship ran aground off Africa and when the conning tower of a U-boat appeared on the horizon the Captain of the ship decided to fly the Free French Flag hoping that the U-boat would not show them any interest. Unfortunately, the U-boat Commander was a linguist and wanted to try out his French, however, no one on the ship could speak French. My dad was taken to a POW camp run by the Italian Army in North Africa from which he escaped and walked through the desert to meet American troops.

Ideally we would like to know more about the likely journeys that John William Steer may have taken on the Merchant Fleet in the Second World War given his medals and the picture, which was taken while he was with the Merchant Fleet, John is sitting at the right edge of the second row with the Sergeant Stripes.

Mrs Jean Summers (nee Steer)

Do any of our readers know of John Steer's time with the Merchant Fleet during the Second World War? As he had an Atlantic Star did this mean he was on the Atlantic Convoys? Also, because he had survivor's leave three times, does this mean that he may have spent time in the water, which was something he would never talk about.

Replies please to wowm.ed@kelsey.co.uk

The Duke class Type 23 frigate HMS *Monmouth*. Pic Fin Reynolds/DPL

THE DUKE-CLASS T23 FRIGATE

THE WORKHORSE OF THE FLEET

The Royal Navy has ordered new state-off-the-art frigates to meet the requirements of future naval warfare, but as the senior service awaits their arrival, the Type 23 Duke-class continues to be the 'workhorse' of the fleet and while primarily designed for anti-submarine warfare, they operate in a general purpose role which today includes standing deployments with NATO formations, maritime counter-terrorism duties and frontline operations in the Gulf.

As we approach the end of the year, the Royal Navy has Type 23 frigates deployed on exercises off Scotland, on standby to shadow Russian warships transiting the English channel and two Duke-class ships, HMS *Montrose* and HMS *Kent*, deployed in the Gulf where they are part of an escort task force protecting UK merchant vessels using international sea routes through the Strait of Hormuz – after a series of incidents with Iran who continues to threaten maritime traffic.

The replacement for the Type 23, the Type 26, will not be in operational service for at least another three years, at best. At the same time, the Type 31e (the 'e' stands for export model) has faced significant delays, but in September, the Ministry of Defence announced that the contract for five 31 class frigates had been awarded to Babcock. There is a concern that the fleet could face a short capability gap as it awaits the new warships, but a major overhaul of all Type 23s is underway to offset any challenges.

The first Type 23 warships entered service in the 1990s and delivered a revolution in design and capability, which continues to serve the fleet. Now, as the Royal Navy prepares for a new phase in its history with the arrival of the Queen Elizabeth carriers, the Type 23 force will provide escort and, in naval parlance, ride 'shotgun' alongside the new warships. Their task will be to keep ships away from the carrier, monitor the area for submarines and be ready to counter a suicide attack by small boat or a missile strike from a drone. To make sure they are ready for this role (and capable of serving another 10-15 years) these ageing racehorses, which have clocked up millions of miles, are all being overhauled to extend their time in service.

The overhaul, called a Life Extension programme, is costing £35 million per ship and is taking place to ensure the fleet can sustain operations as they await the arrival of the delayed Type 23 and Type 31e frigates. The work programme started several years ago with the frigates being phased through the upgrade at Devonport. It will deliver major enhancements to machinery as well as new weapons and systems to provide the frigates with a further decade or more of operational service. But, in an evolving Royal Navy, which faces increasing global commitments, there is little doubt that the Duke-class is facing serious challenges to meet demand as the senior service awaits the arrival of the Type 26.

In future, at least two Type 23s will join the carrier group on deployments operating alongside a Type 45 destroyer and nuclear attack submarine. The first operational deployment of the carrier force is due to take place in 2021, when the HMS *Queen Elizabeth* is due to depart on her first operational deployment.

The Type 23 includes designs based on the experience of the Royal Navy's warships in the Falklands War and benefitted from significant improvements in computer command systems and weapons capabilities. But as well as the vital life extension work, the fleet continues to suffer from a shortage of manpower which has impacted on the number of specialist mechanics and electrical engineers needed to crew the Duke-class warships, often resulting in vessels deploying with positions 'gapped'. On current published estimates by the Royal Navy it is forecast that HMS St *Albans* will be the last to retire in 2036.

BACKGROUND

Planners conceived the Type 23 in the 1970s with the main role of the Dukes being to counter the increasing Russian submarines that were operating in the North Atlantic at the time. There was serious concern that in the event of war the Kremlin would rush submarines through what is known as the 'Iceland Gap' – an area between Greenland, Iceland & United Kingdom, also referred to as the GIUK. At the time, the Soviet navy was very much based around deep-water submarine operations and was building up a formidable fleet of Sub Surface Nuclear (SSNs), which could attack the UK and the United States. In the 1970s, the Royal Navy operated the Leander-class anti-submarine frigates, which were highly regarded, but they needed replacing. The Amazon-class (Type 21) arrived in the mid 1970s but it was a general-purpose frigate and relied on its helicopter to provide an anti-submarine role.

The new anti-submarine Type 23 was to be critical in hunting Moscow's attack submarine, but by the time the Duke-class entered service the Cold War had ended. Lessons learned from the Falklands War saw the new Vertical Launched Seawolf (VLS) fitted to the ships as well as sophisticated counter measures to offset missile attacks, such as Exocet. The Type 23 was also fitted with a focsle mounted 4.5in gun, something the early Type 22 Broadsword frigate did not have (Batch 3s of the Type 22 class were fitted with a 4.5in gun). The first Type 23 frigate, HMS *Norfolk*, entered service in 1989 and was the first of 16 Duke-class warships, which initially replaced the Leander-class.

The Type 23 later became the fleet's only frigate class when the Type 21 Amazon-class was retired and sold to Pakistan while the Type 22 Broadsword-class frigates, axed in the 1998 Strategic Defence Review. Some of the 22s were sold to Chile while others were scrapped. The Type 23 warships, which cost an estimated £130 million each, faced few problems in their early years and were highly regarded.

But cost saving measures at the Ministry of Defence quickly resulted in a need for cutbacks and in 1990 the first of class HMS *Norfolk* was sold to Chile, with HMS *Marlborough* and HMS *Grafton* also being sold in 1991 and 1997. The 4,900 tonne Dukes which have a crew of 185, are 133m long, have a beam of 16.1m and a draught of 7.3 metres. On commissioning, the ships operated with a Lynx helicopter, but now all carry the upgraded Wildcat.

RIGHT: An early Type 23 Duke-class frigate, pictured off the Falklands, before the upgrade to fit a new 4.5in gun. Picture DPL

BELOW: HMS *Portland*, with the new 4-5in gun, arrives at Plymouth for her refit. She is currently at Devonport and is due back with the fleet this year. Picture DPL

HMS *Westminster* pictured at speed, before she underwent her initial overhaul to her system and 4.5in gun. Picture DPL

THE LIFE EXTENSION PROGRAMME

The Life Extension (LIFEX) overhaul includes replacing the current weapons' systems with Sea Ceptor – a missile that can strike multiple targets and used to protect the carrier – although not all 13 Dukes will get the system. A new Artisan radar is to be installed and the warships will receive a Power Generation Machinery Upgrade (PGMU) engine upgrade, which involves replacement of the four main propulsion diesel-generator sets. The work to extend the Type 23s is being carried out at Devonport and on average takes 18 months – two years. Ironically, the LIFEX comes at a time when the RN is struggling to man ships, but the rate of refurbishment means that the last refit should be complete by 2021. However, some Type 23s which underwent an early overhaul, did not get the full machinery upgrade and may need to go back into Devonport for engine overhaul. ➤

LEFT: The Duke-class will see their operational commitments increase to include the role of escort vessels when the new Queen Elizabeth-class carriers when they are in full operation. Picture DPL

BELOW: An Amazon-class Type 21 frigate, which was introduced in the mid 1970s as a general-purpose frigate, although initially without any ASW capability. Picture DPL

in 'reduced readiness' at Portsmouth after her last major role escorting the QE during sea trials in 2017 was towed to Plymouth in 2018 and is undergoing her refit.

HMS *St Albans*, is due to start her refit later this year. HMS *Kent* has completed her refit and is awaiting her engine upgrade; she is currently deployed in the Gulf. HMS *Northumberland* is also active with the fleet. Meanwhile HMS *Sutherland*, a similar age to *Northumberland*, recently took part in Exercise Griffin Strike, the maritime phase of Exercise Joint Warrior off the west coast of Scotland. Finally, HMS *Monmouth*, *Montrose* and *Argyll* have all undergone their refits – although *Monmouth* is still to receive Sea Ceptor – and are all deployed.

The ships currently in refit include HMS *Richmond*, which is due to be back in the fleet in late 2019. HMS *Lancaster*, towed from Portsmouth to Plymouth to start her refit, is in the process of re-joining the fleet while HMS *Portland* is also due back in the frontline later this year. HMS *Somerset* is currently sat at Devonport awaiting refit and is due back in the fleet around 2020. Meanwhile, HMS *Iron Duke*, one of the older Dukes which has been sat

The Leander-class frigate HMS *Argonaut* with its towed array sonar at the stern of the warship. The Type 23 replaced this class. Picture DPL

THE FUTURE

The most recent information would suggest that the fleet has six warships deployed or ready to deploy, one undergoing or finishing FOST (Flag Officer Sea Training) and six in refit with some of that number almost ready to return to the fleet. Ironically, the life extension which sees the ships removed from the fleet could not have happened at a better time – as the Royal Navy continues to face a manning shortage and has struggled to man some of the Type 23s in recent years.

Today's manning level of approx. 30,000 is a huge drop from the 1970s. According to Hansard, the official record of proceedings in the House of Commons, reported manpower was slightly down in 1970. At the time it was listed at 87,500, a force that today's Admirals would truly welcome. At the same time, the fleet had 26 Leander-class frigates in service and eight Amazon-class Type 21 frigates were just entering service – a strong fleet, which was later joined by the Broadsword-class Type 22s.

But while the 1970s were mainly focused on countering Soviet threats and preparing for war, the decades since have seen the fleet deployed on operations. The Falklands, the first Gulf War, the Balkans Crisis and Sierra Leone as well as numerous evacuations missions, have kept the senior service constantly at readiness, while fighting manpower cuts. The current tension in the Gulf and the need to safeguard international shipping lanes in areas such as the South China Sea will ensure that demand for the Type 23 continues at a pace. ■

A Broadsword-class anti-submarine frigate, the early variants had no bow gun, which was added during upgrades. Several ships were sold to Chile and others scrapped. Picture DPL

HMS *Lancaster* arriving at Plymouth for her refit, undertow from Portsmouth where she had been held in operational readiness. Picture DPL

Four Type 23 frigates pictured at Portsmouth. All are undergoing the Life Extension project and when complete all will be base ported at Plymouth. Picture DPL

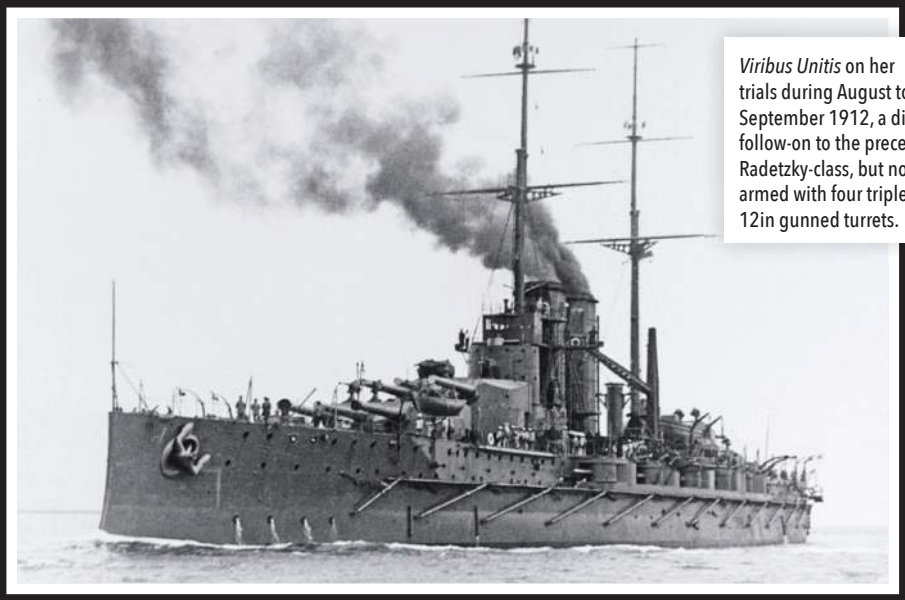
SMS Viribus Unitis

AN AUSTRO-HUNGARIAN DREADNOUGHT

MIKE WILLIAMS

Today both Austria and Hungary are land locked central European nations, but just over a hundred years ago they were merged together into a dual-monarchy which also encompassed a polyglot collection of minor states to form a nation which not only occupied a large land mass but a coastline, and a significant battle fleet, which included some powerful modern dreadnought type capital ships of considerable character and novelty.

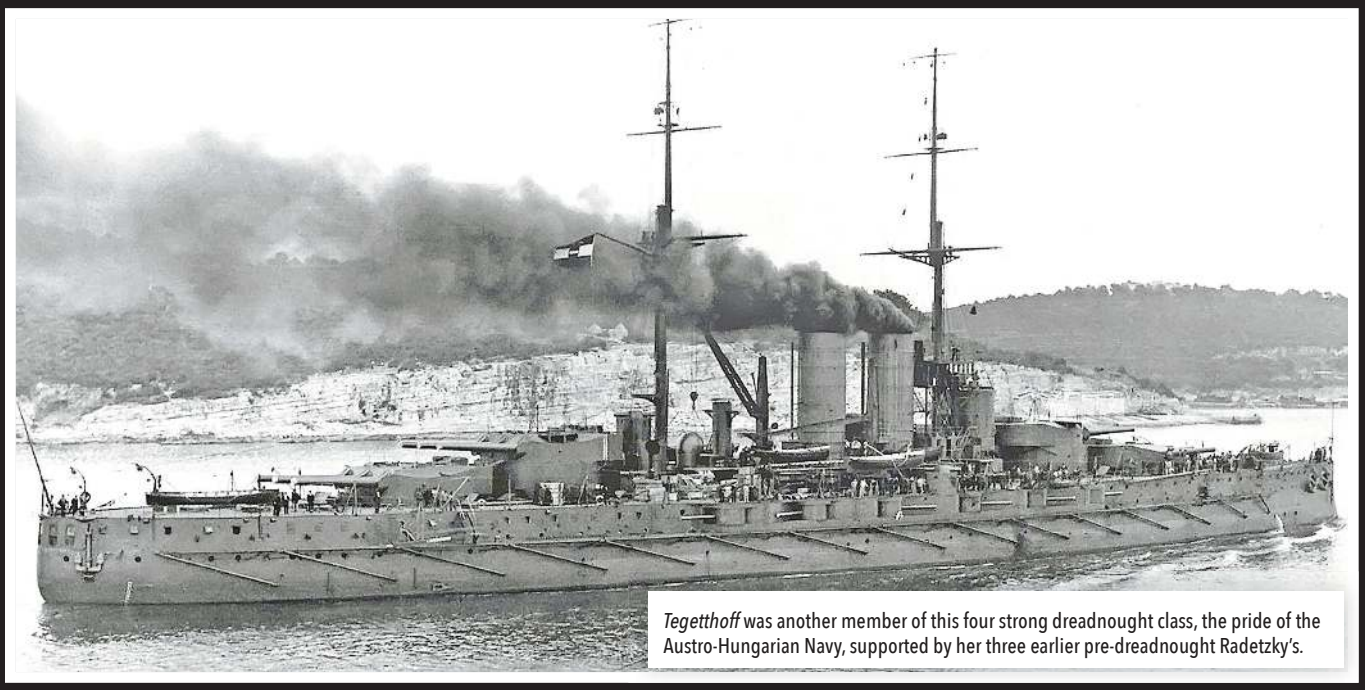
Here I quickly discovered that the SMS (Seiner Majestats Schiff) *Viribus Unitis*, which meant 'With United Effort', was an apt nomenclature for the Dual Monarchy's first dreadnought battleship, replacing the earlier intended name of the *Don Juan*. This new title for their latest capital ship was one that expressed the hopes of the failing Austro-Hungarian Empire, a nation set-up by compromise in 1867, a heterogeneous realm made up of some 20 different nationalities, which straddled central Europe at this volatile time.



Viribus Unitis on her trials during August to September 1912, a direct follow-on to the preceding Radetzky-class, but now armed with four triple 12in gunned turrets.

This Empire covered what is today modern Austria, Hungary, the Czech and Slovak Republics, Slovenia, Croatia, Bosnia, parts of Italy, Rumania and Poland, in its diverse and ponderous extent. Obviously a sprawling continental power, one that concentrated upon its army where a strong 'brown water' riverine Navy for the Danube was essential, yet she was also a major power aware enough to see the potential of a 'blue water' navy, capable of protecting its exposed long Adriatic coastline.

Interestingly in a census of non-commissioned officers on board such a capital ship as its flagship *Viribus Unitis*, would indicate that 34% of such a crew were ethnic Croats and Slovenians, 20% Hungarians, 16% Austrians, 14% Italians, 11% Czechs and Slovakians, with 5% made up from Pols, Ruthenians and Rumanians. However, Austrians would



Tegetthoff was another member of this four strong dreadnought class, the pride of the Austro-Hungarian Navy, supported by her three earlier pre-dreadnought Radetzky's.

have predominated in the officer corps, with German as the 'uniting' service language on board every ship in the fleet.

To graphically underscore the diversity indeed underlying 'divisions' within the dual monarchy of the Austro-Hungarian Empire its naval force was titled the Imperial and Royal War Navy, which in German meant 'Kaiserliche und Königliche Kriegsmarine' shortened to K.u.K. Kriegsmarine, while in Hungarian this was translated as 'Csaszari es Kiralyi Haditengereszet'.

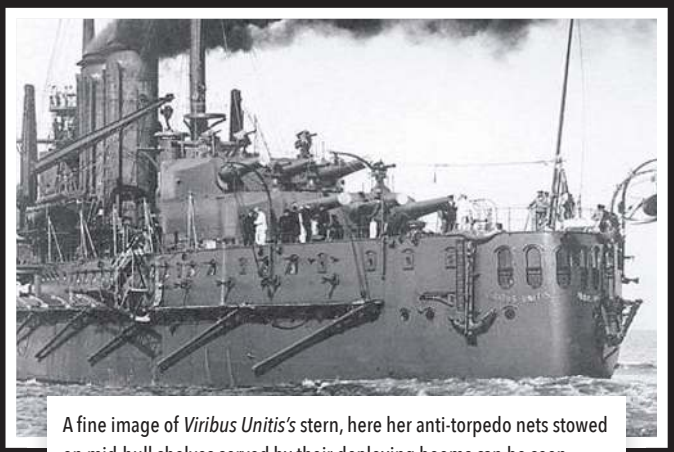
The *Viribus Unitis* of 1912 was one of four modern dreadnoughts, the others being the *Tegetthoff*, *Prinz Eugen* and *Szent Istvan*, which followed in 1913, 1914 and 1915 respectively. Designed by Siegfried Popper, these compact and powerful ships had a full-load displacement of 21,595 tons, and were the first to be armed with the revolutionary Skoda four triple turrets carrying her 12x 12in main armament arrangement. Ably supported by 12 hull casement mounted 5.9in pieces, and initially 18x 2.75in guns, all finally completed by four 21in underwater torpedo tubes.

Physically such a capital ship was a majestic creation, measuring out at 499ft 3in in overall length, and 89ft 8in in the beam, but despite this impressively large armoured structure she was capable of 20.3 knots, from her 25,000shp Yarrow coal-fired boilers and Parsons turbines driving four shafts, with her vital citadel protected by an 11in to 8in main armour belt, and between 1.75in to 1.25in on the principal protected deck, while her peacetime complement totalled some 1,050 officers and men. All in all, this class was regarded at the time as being well balanced capital ships from that era, with perhaps a rather weak underwater protection layout being the foremost negative feature about them.

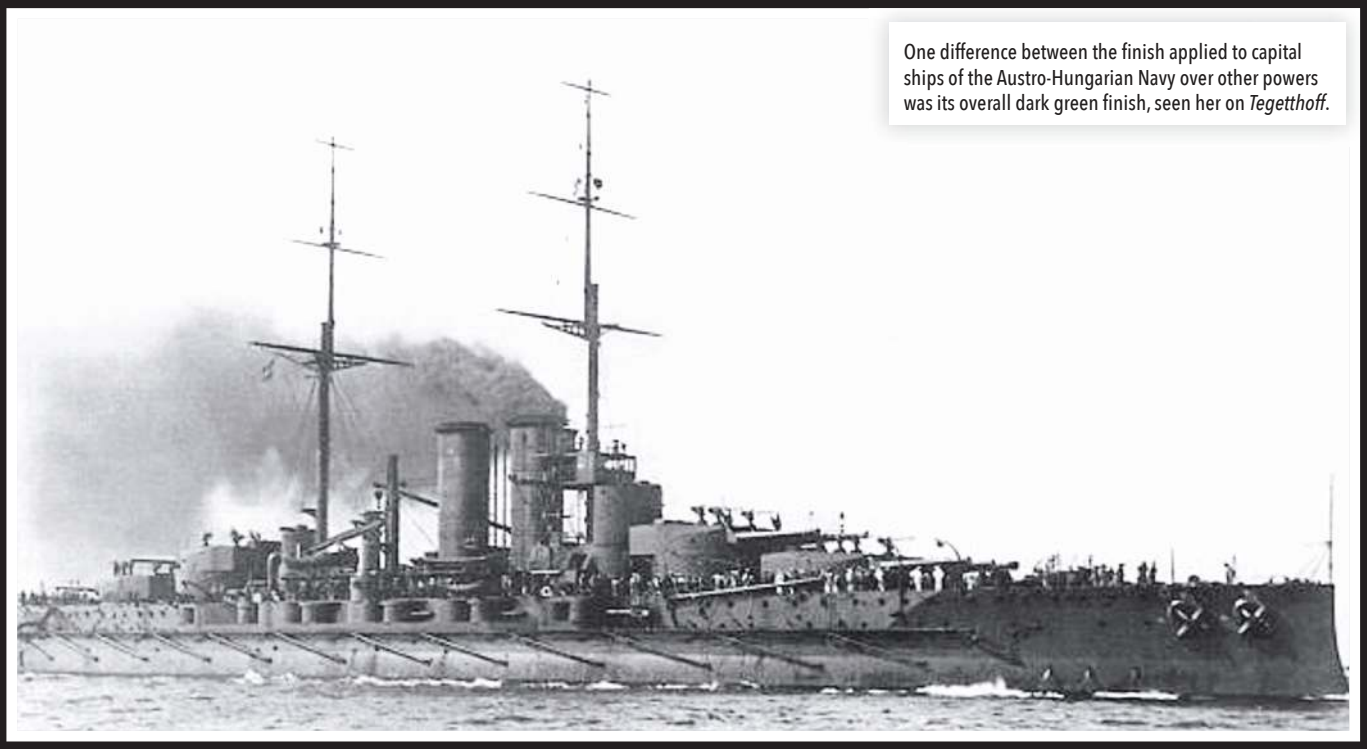
The *Viribus Unitis* was laid down on 24 July 1910 as *Dreadnought IV (Don Juan)*, launched the following year on 24 June. After her subsequent fitting out she was deemed ready for her trials on 1 October 1912, before being finally commissioned two months later on 5 December. The *Viribus Unitis* entered the 1st Division of the 1st Battle Squadron, and in 1916 she achieved the premier position of the Austro-Hungarian Navy, the Fleet Flagship.

She had been built at the able and skilled Stabilimento Tecnico Triestino yard on the Adriatic, were the *Prinz Eugen* and *Tegetthoff* were also destined to be built. While the *Szent Istvan* as a purely political gesture, was built at the inexperienced Hungarian controlled yard of Danubis Vereingte at Fiume.

The *Viribus Unitis* and *Tegetthoff* made their only peacetime training cruise to the eastern Mediterranean in the spring of 1914 including a visit to Malta in May just prior to the start of the First World War. To the *Viribus Unitis* at this troubled time also goes the dubious and fateful distinction of transporting the body of the assassinated Archduke Franz Ferdinand the Austrian Crown Prince, whose murder was to spark off the war, back to Trieste at the end of July. As fate would have it he had ➤



A fine image of *Viribus Unitis's* stern, here her anti-torpedo nets stowed on mid-hull shelves served by their deploying booms can be seen.

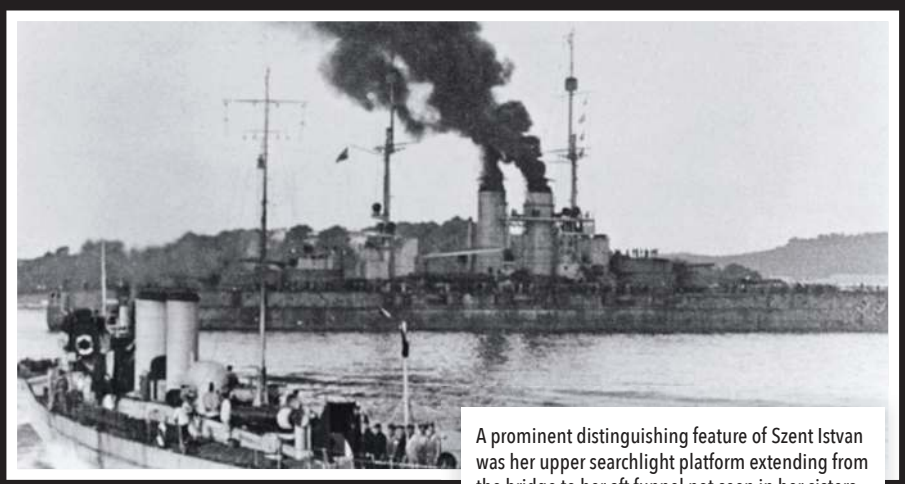


One difference between the finish applied to capital ships of the Austro-Hungarian Navy over other powers was its overall dark green finish, seen her on *Tegetthoff*.

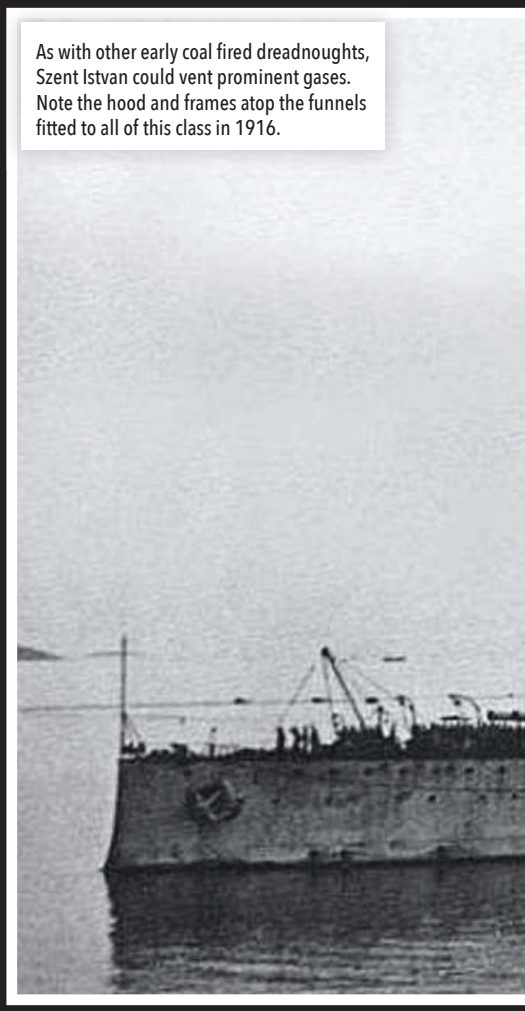
been the Guest of Honour at her launch three years previously.

These capital ships, along with the rest of the Dual Monarchy's battleships, were to have a relatively inactive war in the Adriatic, being successfully contained by the allied Otranto barrage. In this they seemed quite intent and content to tie down considerable allied resources and ships, with a 'Fleet in being' approach. A powerful navy lying secure within its heavily defended bases, ready to strike where and when it wanted, but venturing forth was one thing it rarely risked. This was in marked contrast to her very active cruisers, light craft and naval air arm, which were to be much employed throughout the First World War, the latter arm indeed loosing 50% of its machines during the four years of this attritional conflict.

On one of the few aggressive operations, the *Viribus Unitis*, *Prinz Eugen*, and *Tegetthoff* carried out a shore bombardment off the Italian coast on 24 May 1915 attacking the port of Ancona, in response to Italy joining the Allied camp the previous day. Apart from this perhaps their most celebrated operation involving all four ships of this class occurred on 9 June 1918, against the allied barrage in the Strait of Otranto.



A prominent distinguishing feature of Szent Istvan was her upper searchlight platform extending from the bridge to her aft funnel not seen in her sisters.



As with other early coal fired dreadnoughts, Szent Istvan could vent prominent gases. Note the hood and frames atop the funnels fitted to all of this class in 1916.

During their approach the *Szent Istvan* was hit by two torpedoes from the small and skilfully handled Italian torpedo-boat *Mas 15* near Premuda Island, seeing this mighty dreadnought eventually sinking with 89 fatalities.

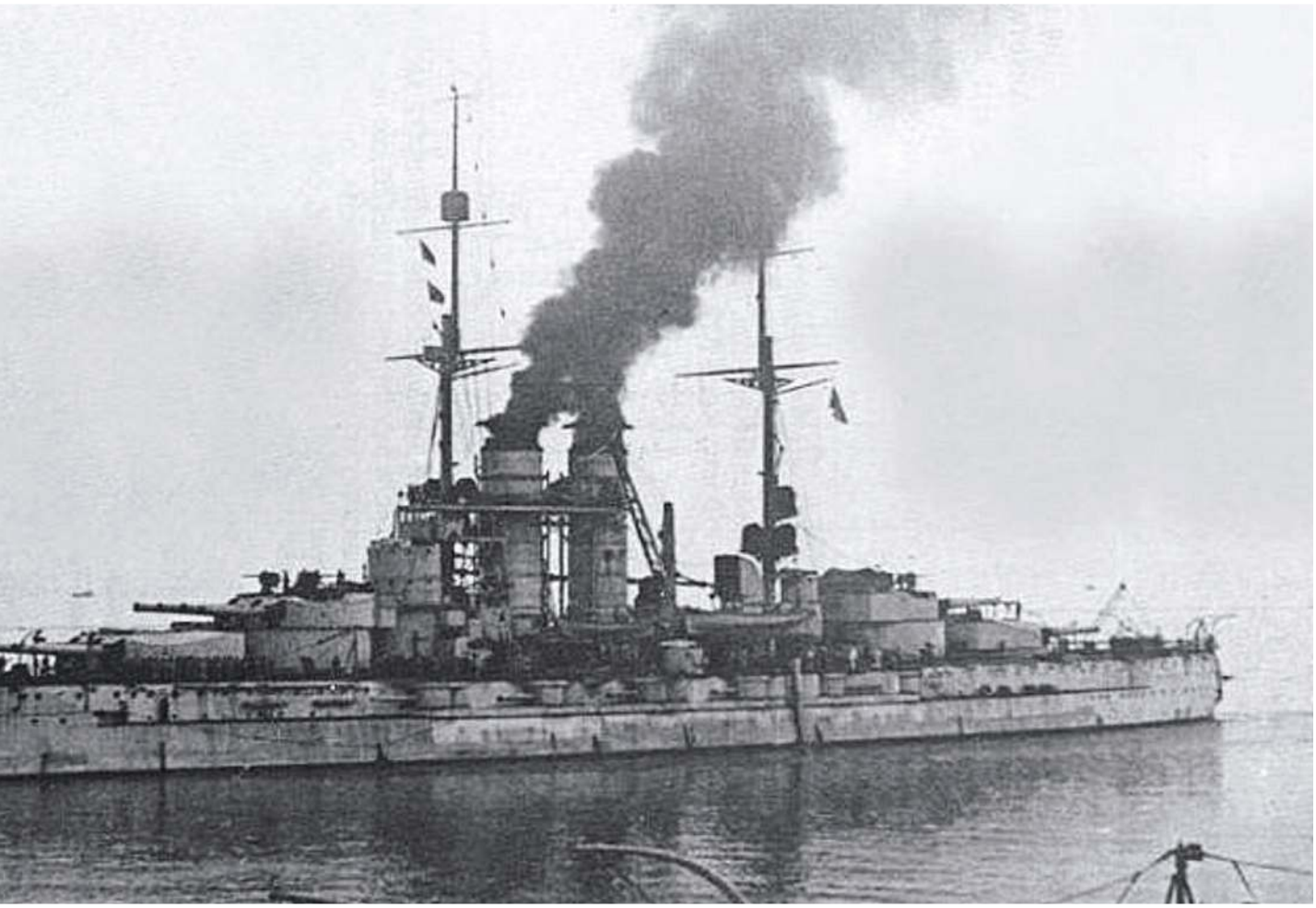
If one event in the Austro-Hungarian battle fleet's existence is well known, then it is this incident which has become set in the mind of virtually every naval enthusiast, with her irrevocable listing, capsizing and demise, recorded on a motion picture taken from the bridge of the *Tegetthoff*.

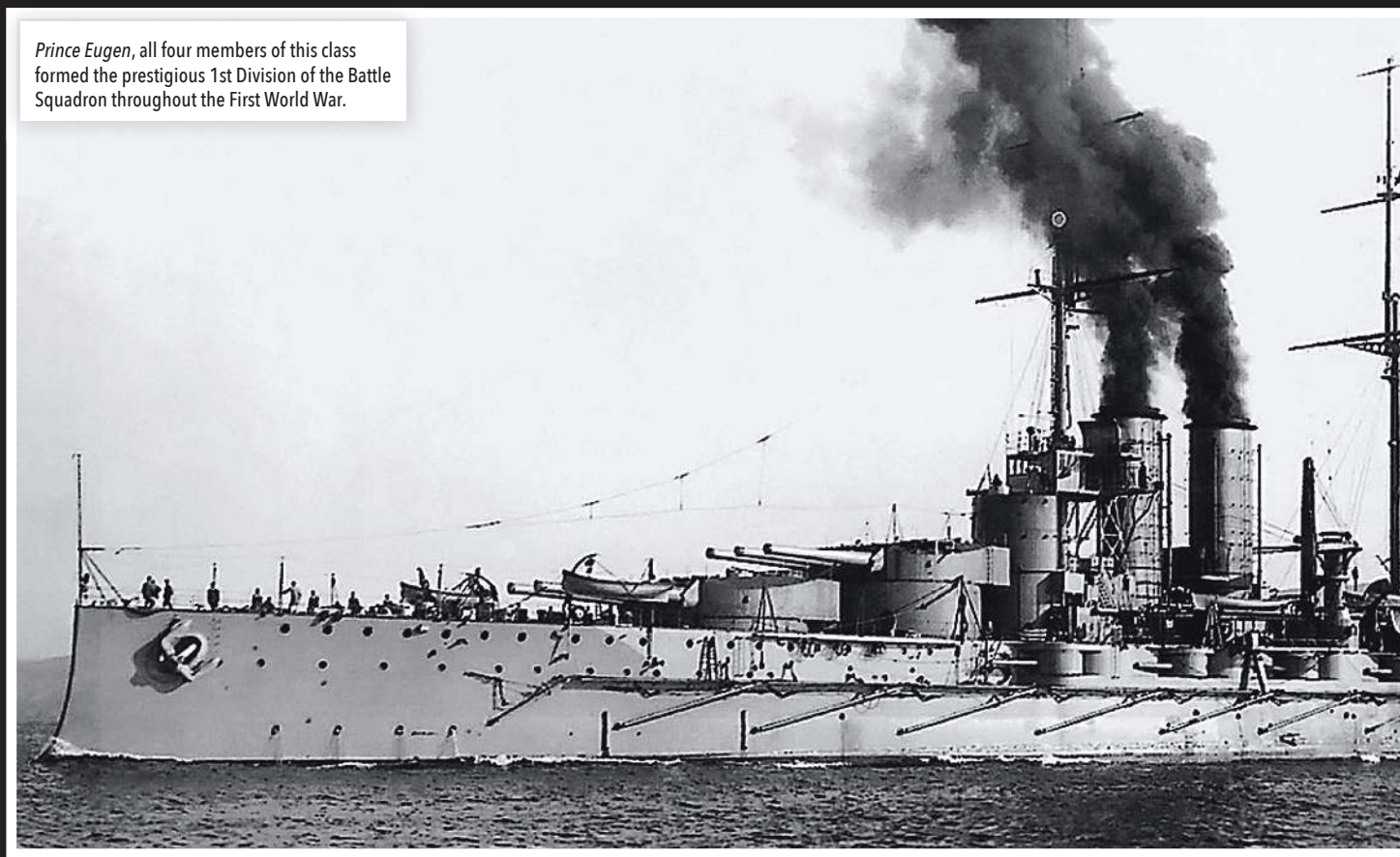
This telling footage captured her inexorable list to starboard, with her 12in guns trained to port in a futile attempt to try and compensate for the flooding. Her massed crew lining the port rail, then running en masse down her side as she slowly capsized, struggling and scrambling onto her upturned hull in her rapid toppling, in a welter of spray and steam. A truly dramatic scene often included and inserted, into many a naval film in the decades that followed. Indeed, so traumatic was the episode that the Otranto sweep was abandoned, and the reduced squadron returned to its safe refuge behind its heavily defended barriers in Pola harbour.

For the *Viribus Unitis* under Captain Jomko Vukovic, here was to await a final tragic fate in unusual circumstances reflecting the demise of the old realm which she had faithfully served. On 31 October 1918, with the collapse of the old Empire the Austro-Hungarian battle flag was hauled down for the last time, and she was transferred to the newly formed Yugoslav National Council (with her being possibly re-named *Yugoslavia*). This was a last futile bid by the defeated Emperor Carl and his admirals to keep his prized fleet out of Italian hands, their arch rivals. For the crew their war was finished as they lay secure in Pola harbour, and with the fall of their officer's authority, discipline declined and a relaxed air predominated, with the ship well illuminated and all watertight doors opened.

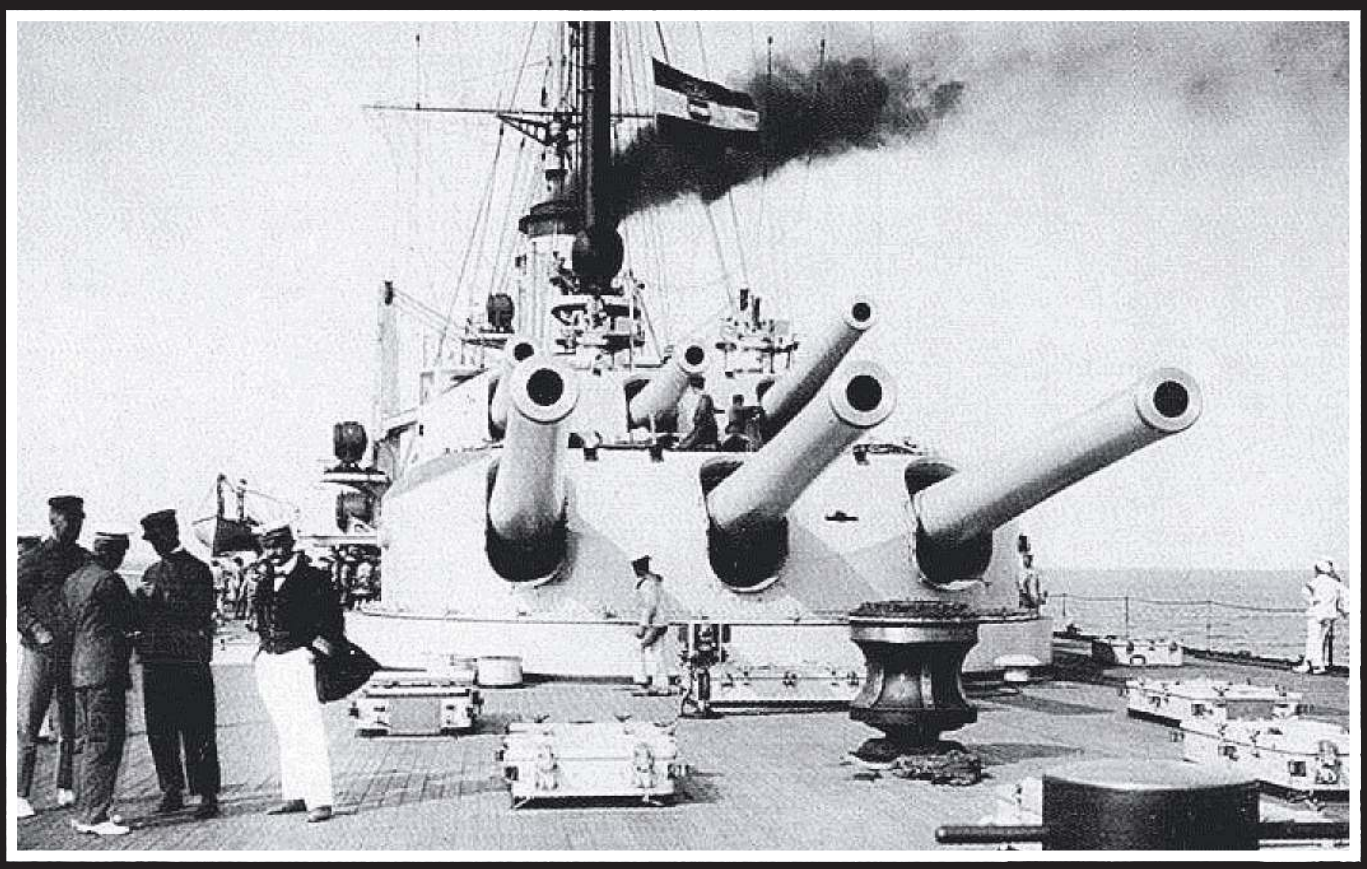
Not aware of the battleships charge of 'nationality' and status, the next night two intrepid Italians, Rossetti and Paolucci manning one of the earliest forms of underwater chariot modified from a German torpedo, entered Pola harbour. They successfully placed two detachable 200kg limpet mines to the *Viribus Unitis* and sank her along with approximately 400 of her crew on board at the time. The Armistice of Villa Giusti was signed just two days later on 3 November 1918, hostilities ended and eventually the wreck lying in shallow waters was broken up during the twenties.

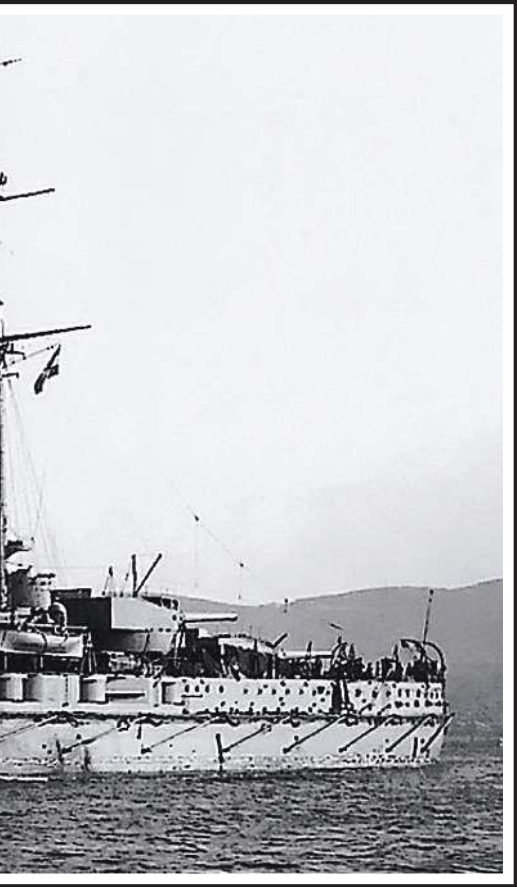
Of the two sisters which survived the war, the *Tegetthoff* was allocated to a victorious Italy being subsequently broken up at La Spezia from 1924, while the *Prinz Eugen* was ceded to France ➤





Prince Eugen, all four members of this class formed the prestigious 1st Division of the Battle Squadron throughout the First World War.





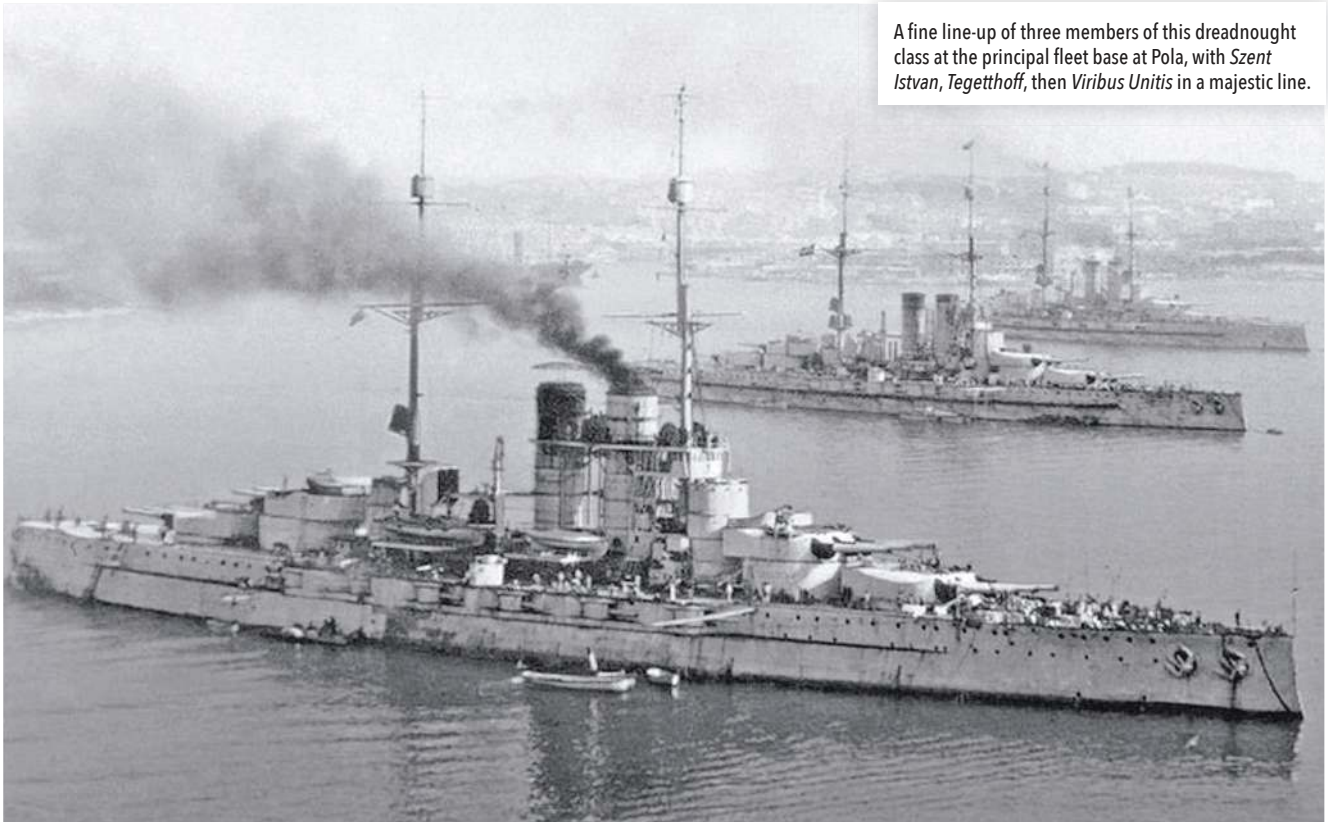
finally being expended as a target ship off Toulon in 1922.

Of the grandiose Austro-Hungarian naval building program of this era, represented in the four completed *Viribus Unitis* battleships, planned four strong Ersatz Monarch-class, all based upon her existing pre-dreadnought fleet of four Erzherzog Karl-, four Radetzky-class units, and three Habsburg's, supported by two armoured cruisers and a phalanx of light scout cruisers and nimble torpedo-boats. All of this disappeared in November 1918, with the disintegration of the Austro-Hungarian Empire.

One major indicator confirming such a dreadnoughts early appearance, has to be her overall finish, which during the pre-war era has been described as dark olive green-grey. This was soon replaced in 1914 by a light-grey finish, as captured in photographic coverage of her May 1914 visit to Malta, well before the adoption of prominent funnel topping caps (1917), the removal of the anti-torpedo nets (1918), or revision to the light tertiary armament, especially losing six 2.75in guns, and gaining two 3in anti-aircraft pieces (1916).

The overall features and fixtures possessed by the *Viribus Unitis* and her class were certainly unique, one can say typically Austro-Hungarian in style and configuration, bearing no resemblance or similarity to any other foreign vessel, with their flush weather deck, two pairs of superimposed triple turrets, separated by two close together tall funnels, and light open fore-bridge.

However, it is in their service as the core of the Kaiserliche und Königliche Kriegsmarine's powerful 'fleet in being' doctrine that they are best remembered for, albeit a seemingly static and inactive one, but a role to which the allied naval powers had to maintain an equally powerful fleet to counter, against the occasional Austro-Hungarian Imperial and Royal War Navy bombardment of Italy or raid on the allied blockade, with the fate of the four members of this class of powerful dreadnoughts inexorably linked to the fortunes of the Empire which they served, two being lost in controversial circumstances and two ignominiously disposed of as being superfluous in the immediate post First World War period. ■



A fine line-up of three members of this dreadnought class at the principal fleet base at Pola, with *Szent Istvan*, *Tegetthoff*, then *Viribus Unitis* in a majestic line.

THE SINKING OF THE KONIGSBERG

The German invasion of Norway, Operation Weserübung, was as swift as it was decisive. It also, to some degree, caught the British off guard and saw the Royal Navy hurriedly put a counter offensive into operation. Admiral Forbes ordered the Home Fleet to attack German shipping in the port of Bergen and Trondheim with the former being given priority in the planning. RAF reconnaissance flights reported 'at least one Koln-class cruisers at Bergen'.

BY PAUL BAKER

Meanwhile, a striking force comprising of the cruisers *Manchester*, *Southampton*, *Glasgow* and *Sheffield* with the seven destroyers of the 4th and 7th Flotillas sailed to a position off Norway with orders to destroy enemy forces at Bergen.

Bergen Harbour has two entrances, the Fejeosan Fjord and Kors Fjord and both were to be covered by the destroyers with the cruisers in support. Despite these preparations, Admiral Forbes was worried by the possibility of U-boats in the area and determined the best way to attack the Koln-class cruiser was by a carrier strike with torpedoes.

The aircraft carrier HMS *Furious* was nearby but still two days steaming away from being within striking range. So, the Admiralty requested the Royal Air Force attack the cruiser and other shipping at Bergen. The RAF mission was set to launch on the evening of 9 April 1940 with the Royal Navy Skuas of 800 and 803 Naval Air Squadron's launching on the morning of 10 April.

Königsberg was a German light cruiser that was operated between 1929 and April 1940, including service in the Second World War. She was the lead vessel of her class and was operated by two German navies, the Reichsmarine and the Kriegsmarine. She had two sister ships, *Karlsruhe* and *Köln*. *Königsberg* was built by the Kriegsmarinewerft in Wilhelmshaven; she was laid down in April 1926, launched in March 1927, and commissioned into the Reichsmarine in April 1929. She was armed with a main battery of nine 15cm guns in three triple turrets and had a top speed of 32 knots (59 km/h; 37 mph).

Throughout the 1930's, the cruiser had been used as a training ship for naval cadets, but also saw service during the Spanish Civil War during the non-intervention patrols off the coastline. In the early days of the Second World War her minelaying capabilities was utilised laying defensive minefields in the North Sea.

The surface units of the British fleet had encountered storm force winds and were some distance from the entrance to Bergen. To add to the complications another reconnaissance flight discovered that a pair of cruisers were in port not the single one previously reported. This news saw the cancellation of the planned surface action using the seven destroyers.

The German's had also discovered the presence of the Royal Navy force and they came under attack by both medium level and dive bombers. This proved to the first sustained battle between aircraft and ships in history. Bombs from the 47 Junkers Ju88s and 41 Heinkel He IIIs managed to score near misses and slight damage on the cruisers *Southampton* and *Glasgow*. The warships were battling terrible sea conditions which rendered their anti-aircraft direction systems difficult to operate effectively. One destroyer HMS *Gurkha*, tried to operate independently but paid for this manoeuvre by being overwhelmed and later sank after her survivors were taken aboard the cruiser *Aurora*. Elsewhere, the battleship *Rodney* was struck by a 500kg bomb which caused little damage.

The British learnt the valuable lesson that day that it was important to have fighter cover for a task group. Despite this, HMS *Furious* had no fighters embarked at this time. Instead the Skuas of 800 and 803 naval air squadrons which were at RNAS Halston were to be used.

By sunset on 9 April, there were three separate plans to attack Bergen in place. The first would see a cruiser/destroyer force enter the port with guns blazing; the second using Swordfish aircraft armed with torpedoes flying from the deck of HMS *Furious*; and the third using the Skuas from RNAS *Halston* in the Orkney Islands at the extreme end of their endurance. To Admiral Forbes all presented something of a dilemma. RAF Bomber Command oversaw all operations from the littoral inland and Norway came under these criteria and the Home Fleet had no experience or expertise in such attacks at this time. Equally, Bomber Command had precious little expertise in attacking shipping as well. The RAF gave the

British Commanders a fourth attack option when they flew 12 Wellington bombers from nine and 115 Squadrons and 12 Hampden bombers from 50 Squadron attacking the port but failed to score any direct hits. Some of the aircraft did, however, fly low and strafed the cruiser *Koln* killing three for the loss of a Wellington bomber.

The German Assault Group 3 under the command of Rear Admiral Schmundt comprised of his flagship *Koln*, *Königsberg*, the gunnery training ship *Bremse*, torpedo boats *Leopard* and *Wolf*, the 1st E boat Flotilla and the depot ship *Karl Peters*. During the invasion, the Norwegians successfully attacked the invading force hitting the *Bremse* with an 8in shell and three more on the *Königsberg*, one of which holed the cruiser on the waterline. The *Königsberg's* captain realised that he could not now return to Germany as planned until the ships' engineers had patched up the battle damage.

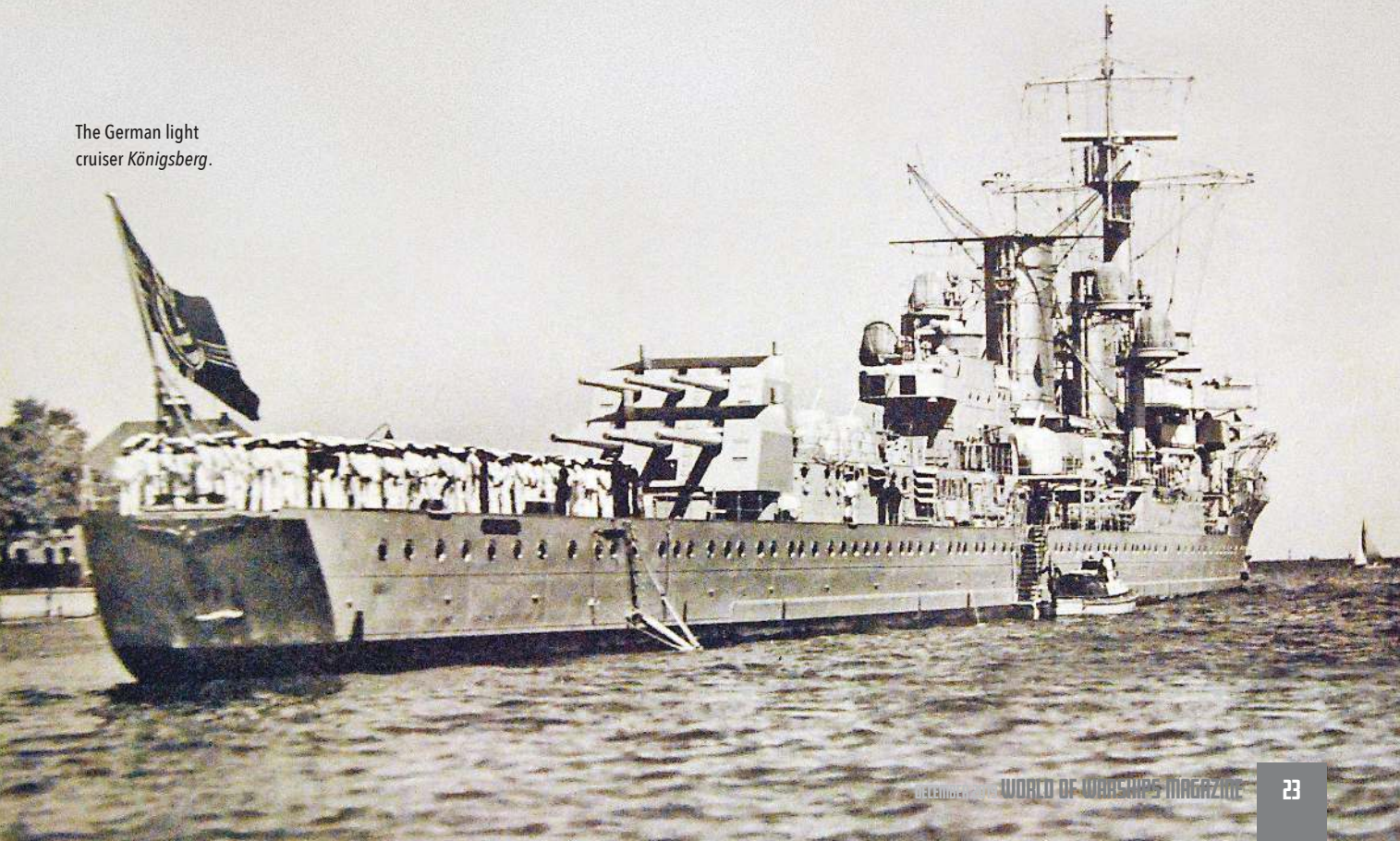
Meanwhile, a Royal Navy observer on an RAF reconnaissance flight, Lieutenant Commander Geoffrey Hare correctly identified the German forces in port and reported his findings directly to RNAS *Halston* bypassing the usual chain of command through RAF Coastal Command. This simple act saved precious time.

The Skuas had an endurance of four hours and 20 minutes, Bergen was two hours away and two hours back. It was a risky and courageous move to launch the Skuas, but the mission went ahead at dawn on 10 April 1940 maintaining radio silence all the way. Sixteen aircraft flew at 05.15 to arrive at Bergen slightly after dawn broke.

As the two groups of aircraft made landfall, they were flying at 12,000ft for an attack out of the sun. All the ships in harbour had change positions since the last reconnaissance mission but *Königsberg* was alongside the Skotlegrund Mole undergoing repairs.

As the aircraft entered the fjord, they passed three large fuel storage tanks and merchantmen to their right but no signs of the expected cruisers. The *Koln* had slipped out to sea overnight but suddenly the pilots saw the *Königsberg*. The Skuas rose up to their dive-bombing height and commenced their attack diving down at 65 degrees. *Königsberg* put up little in way of anti-aircraft fire, initially believing the aircraft to be friendly Luftwaffe planes. At 1,800 feet the bombs were released.

All 16 Skuas survived the attack but not the *Königsberg* which was hit by at least five 500-pound bombs. One of which penetrated the thin deck armour and continued straight through the ship and exploded in the water underneath the ship. The shock wave created caused severe structural damage to the cruiser. Another bomb destroyed the auxiliary boiler room and another pair detonated near the ship tearing large holes in the ships' sides. Water started to pour into the ship which was also on fire and she started to go down in the bows as well as taking on a heavy list to port. *Königsberg's* captain ordered his crew to abandon ship as the cruiser rolled away from the mole. Within three hours the ship capsized and sank allowing a large amount of ammunition and equipment to be salvaged from her before she sank. Only 18 men died in the attack. As the cruiser sank, above the spot there was a pall of thick black smoke hanging in the air over the scene. The wreck of the cruiser was raised on 17 July 1942 and slowly dismantled until by 1943 nothing remained. ■

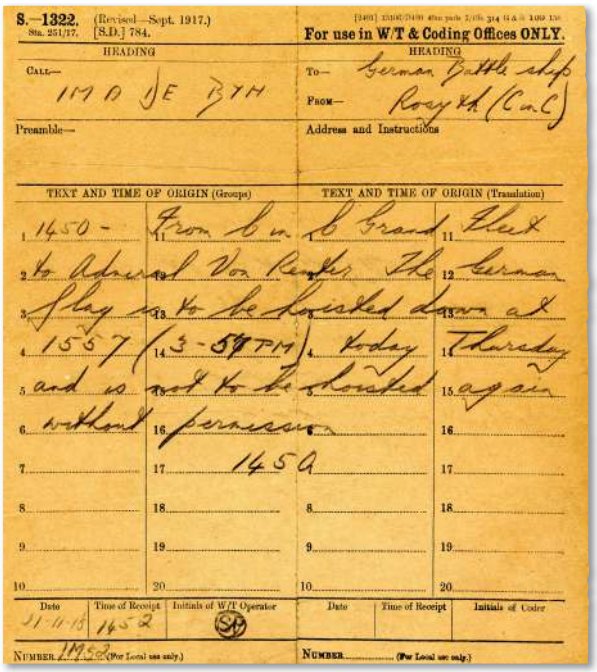


The German light cruiser *Königsberg*.

GERMANY'S NAVY

SCAPA FLOW PART 3

The expansion of the German fleet was deemed counterproductive as it seemed to strengthen the alliance between Britain, France and Russia.


S.—1322. (Revised—Sept. 1917.) Sta. 251/17. [S.D.] 784.

For use in W/T & Coding Offices ONLY.

HEADING

CALL— IMA DE BYH

HEADING

To— German Battle ship

FROM— Rosyth (C in C)

Preamble—

Address and Instructions

TEXT AND TIME OF ORIGIN (Groups)

1450 - From C in C Grand Fleet to Admiral Von Reuter The German flag is to be hoisted down at 1557 (3-57 PM) today Thursday and is not to be hoisted again without permission

1450

TEXT AND TIME OF ORIGIN (Translation)

Date 21-11-18 | Time of Receipt 1452 | Initials of W/T Operator | Date | Time of Receipt | Initials of Coder

NUMBER 1452 (For Local use only.) NUMBER (For Local use only.)

A copy of the original telegram sent by Admiral Beatty to von Reuter informing him to lower the German ensign on all the High Seas fleet immediately and not to hoist it again without permission. This telegram was auctioned in 2018 and is now in the possession of Martin Higginson.

Britain responded to the threat of Germany's naval expansion by having eight dreadnought battleships built for the Royal Navy, which had the effect of making the Germans pause in their own building programme. The expansion of its fleet by Germany proved to be counter-productive in that it brought the country no allies, and served to strengthen the Triple Alliance between Britain, France and Russia by bolstering the British commitment to it.

Talks were held in an attempt to defuse the situation, with various suggestions about the ratio of capital ships in the respective navies, but no agreement was reached, as there was a steady deterioration in Anglo-German relations. Early in 1911, there was a proposal put to the Germans to exchange information about current and planned naval construction, but no agreement could be reached and the discussions ended in deadlock. The end of the year was dominated by a dangerous confrontation between Germany and France over Morocco, in which Britain was also involved, and which resulted in Tirpitz pushing for further expansion of the navy by adding three battleships and three battlecruisers to existing plans for the next six years. Although these plans were only partially realised, the threat to the Royal Navy's supremacy continued. Britain's aim in 1912 was to have a five-to-three ratio of warships compared to the German navy.

As the naval arms race threatened to get out of hand, Britain and Germany attempted to reach a compromise with the Haldane Mission, led by the British War Minister Richard Haldane. However, the reduction mission ended in failure, and the 1912 naval law was announced shortly thereafter. This would have given Germany a total of 41 battleships, 18 large cruisers and 40 small cruisers, as well as various other craft, including 72 submarines.

Although these totals were never reached, by 1914 Tirpitz had given Germany the second largest naval force in the world, although it remained roughly 40 per cent smaller than the Royal Navy. It included 17 modern dreadnoughts, five battlecruisers, 25 cruisers and 20 pre-dreadnought battleships, as well as over 40 submarines.

But at the outbreak of war in August 1914, the German navy was in fact relatively weak and had only one eight-ship squadron of dreadnoughts, the First Battle Squadron, which had been assembled with Nassau- and Helgoland-class battleships. The second squadron of dreadnoughts, the Third Battle Squadron, included four Kaiser-class battleships, and was only completed when the four König-class battleships entered service in early 1915. The fleet, although not as large as intended, still seemed impressive in size and firepower. However, its potency was nullified thanks to the Royal Navy adopting a new policy.

Before war had started, the Germans had realised that the Royal Navy had abandoned the idea of a decisive battle with the German fleet in favour of blockades at the entrances to the North Sea, which the British could easily control due to their geographical position. This meant the likelihood that the German fleet would be unable to force a battle on its own terms, which would render it militarily useless. When the war came in 1914, the British did in fact adopt this strategy. Coupled with the restrictive orders of the Kaiser, who preferred to keep the fleet intact to be used as a bargaining chip in the peace settlements, the ability of the High Seas Fleet to affect the military situation was markedly reduced, and in fact only one major naval battle was fought during

ABOVE/RIGHT: Admiral Beatty on board the battleship HMS *Queen Elizabeth*, looking on as the Germn High Seas fleet surrender and pass the British as they arrive in the Firth of Forth, 21 November 1918.

the conflict, the Battle of Jutland in 1916.

The battle took place on 31 May and 1 June 1916 and was the largest naval battle of the First World War. It was the only time that the British and German fleets of dreadnought battleships actually came to blows. The German High Seas Fleet hoped to weaken the Royal Navy by launching an ambush on the British Grand Fleet in the North Sea. German Admiral Reinhard Scheer, planned to lure out both Admiral Sir David Beatty's Battlecruiser Force and Admiral Sir John Jellicoe's Grand Fleet and destroy Beatty's force before Jellicoe's arrived.

But the British were warned by codebreakers and put both forces to sea early. Jutland was a confused and bloody action, involving 250 ships and around 100,000 men. Initial encounters between Beatty's force and the German High Seas Fleet resulted in the loss of several ships. The Germans damaged Beatty's flagship, HMS *Lion*, and sank HMS *Indefatigable* and HMS *Queen Mary*.

Beatty withdrew until Jellicoe arrived with the main fleet. The Germans, now outgunned, turned for home. The British lost 14 ships and over 6,000 men, but were ready for action again the next day. The Germans, who had lost eleven ships and over 2,500 men, avoided complete destruction, but never again seriously challenged British control of the North Sea. Although it failed to achieve the decisive victory each side hoped for, the Battle of Jutland confirmed British naval dominance and secured its control of shipping lanes, allowing Britain to implement the blockade that would contribute to Germany's eventual defeat. The Germans made further unsuccessful attempts to reduce the Royal Navy's numerical advantage, before accepting that its surface ships had been contained, and efforts and resources were focussed instead on unrestricted submarine warfare and the destruction of Allied and neutral shipping, which, by April 1917, triggered the United States of America's entry into the conflict and declaration of war on Germany.

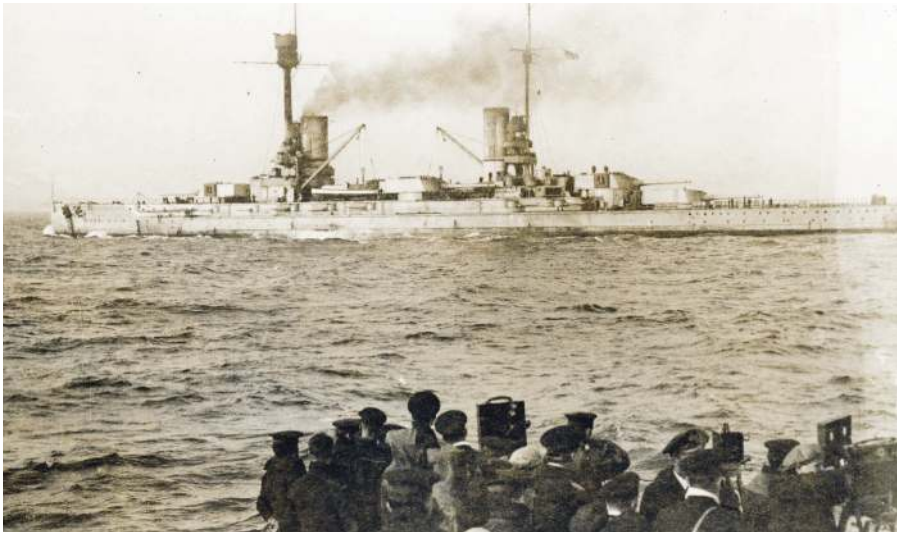
By 1917, with the war in its fourth year, the conflict was taking its toll on the crews of the ships of the High Seas Fleet. Acts of passive resistance, such as the posting of anti-war slogans in the battleships SMS *Oldenburg* and SMS *Posen* in January 1917, began to appear. In June and July, the crews began to conduct more active forms of resistance, including work refusals, hunger strikes, and taking unauthorised leave from their ships. A final fleet action was planned for the end of October 1918, days before the Armistice was to come into force. Most of the High Seas Fleet was to have left Wilhelmshaven to engage the British Grand Fleet. Grand Admiral Scheer intended to inflict as much damage as possible on the British navy, in order to retain a better bargaining position for Germany, despite the expected casualties. However, many of the war-weary sailors felt the operation would disrupt the peace process and prolong the war and, starting on the night of 29 October, sailors on *Thüringen* and several other battleships mutinied. The unrest ultimately forced the operation to be cancelled, and the German Imperial Navy's days had ended.

Following the capitulation of Germany on November 1918, most of the High Seas Fleet, under the command of Rear Admiral Ludwig von Reuter, were interned in Scapa Flow, sailing from Germany to the Firth of Forth and then heading north to Orkney. However, prior to the departure of the German fleet, Admiral Adolf von Trotha made clear to von Reuter that he could not allow the Allies to seize the ships, under any circumstances, whatever was agreed by the Armistice.

Continues in the February issue.

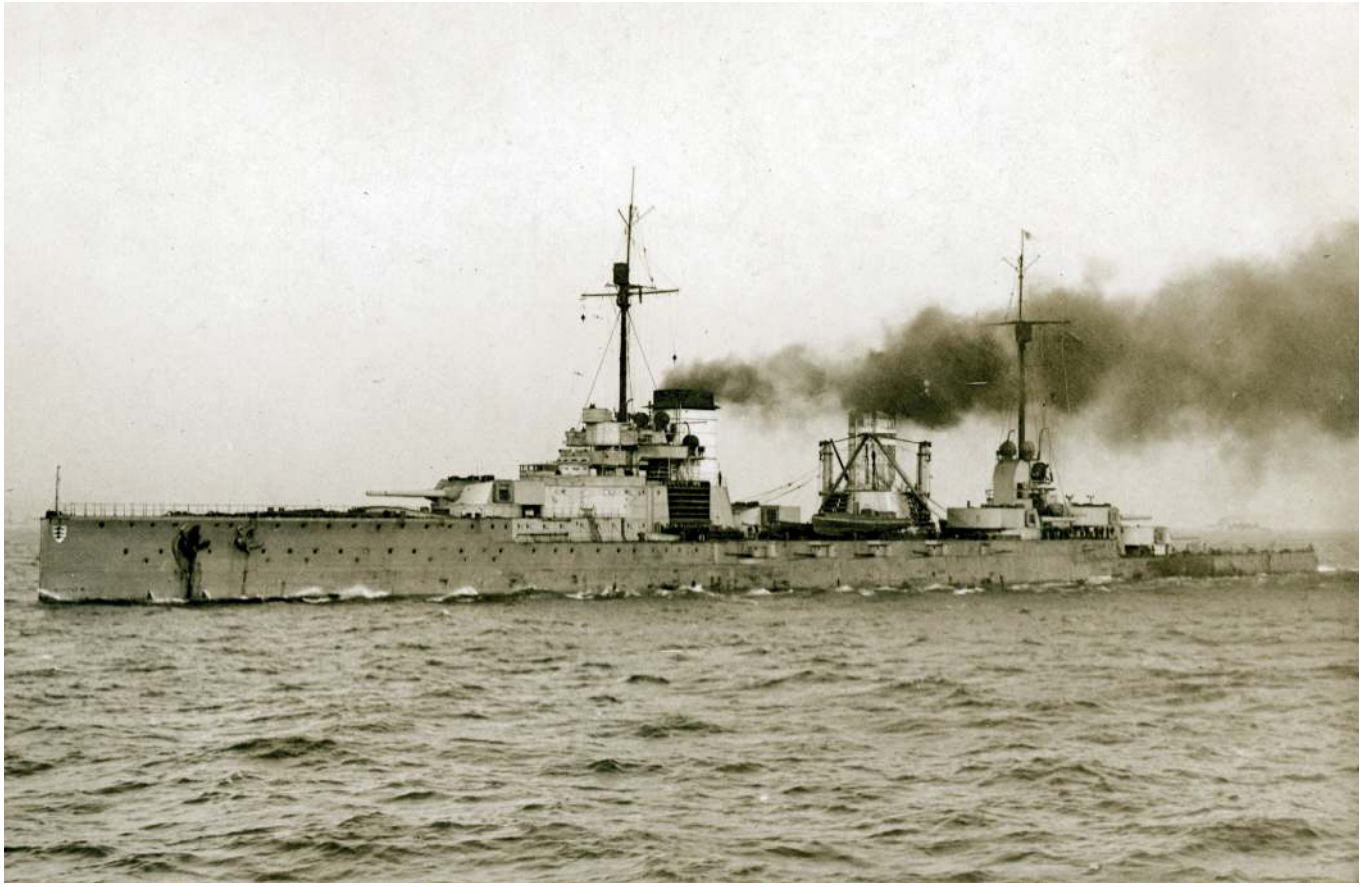
Surrender of the German High Seas fleet to Admiral Beatty off the coast of Scotland, with the German ships sailing past British ships and sailors into the Firth of Forth. The event was photographed by a national press agency.

British sailors watching as SMS *Von der Tann* sails north to Scapa Flow. *Von der Tann* was the first battlecruiser built for the German Kaiserliche Marine, and was also Germany's first major turbine-powered warship. At the time of her construction, Von der Tann was the fastest dreadnought-type warship afloat, and was capable of reaching speeds in excess of 27 knots. She was from 1907 to 1910 by Blohm & Voss, Hamburg, and was in commission from 1910 to 1919.

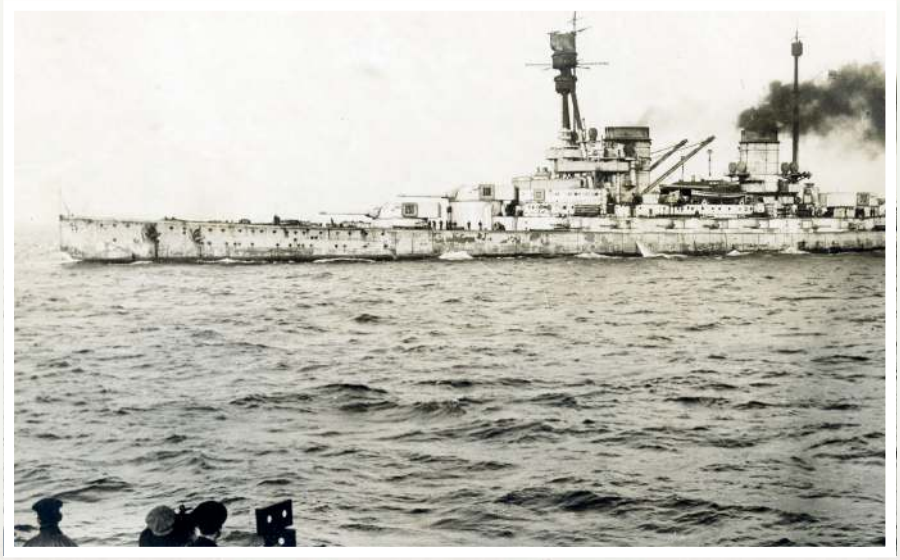


LEFT: *SMS Friedrich der Grosse* heading into the Firth of Forth. She was the second vessel of the Kaiser class of battleships and was was armed with a main battery of ten 30.5cm SK L/50 guns in five twin turrets. During the war she was involved in a number of sweeps and advances into the North Sea as part of the High Seas Fleet.

BELOW: *SMS Derfflinger* on her way to the Firth of Forth soon after the German surrender.



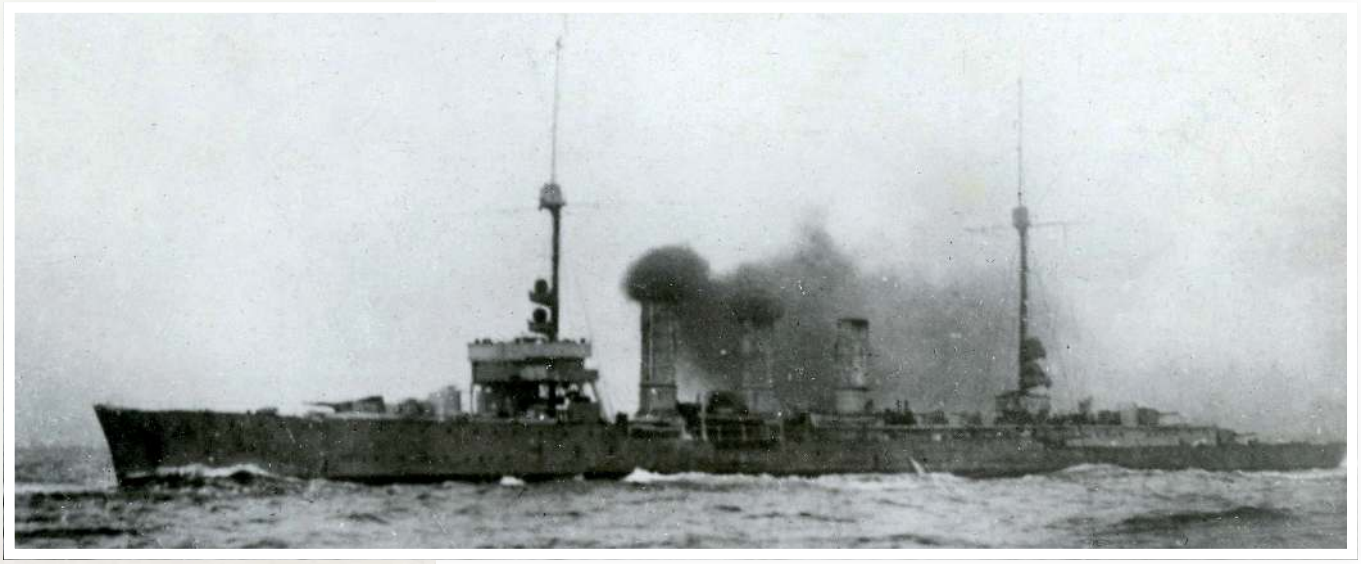
ABOVE/BELOW: *SMS Seydlitz* on her way north to Scapa Flow after the surrender of the German fleet at the end of the war.



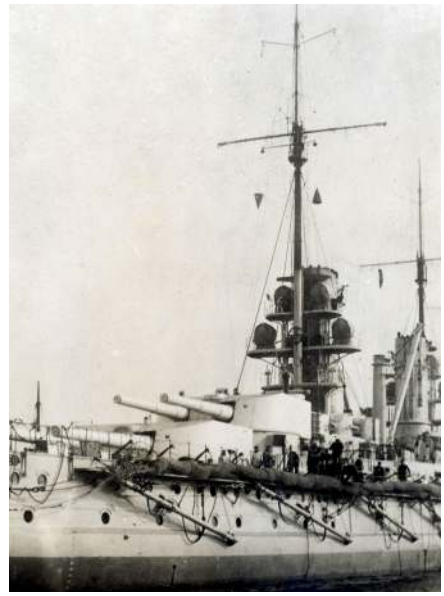
LEFT: *SMS Hindenburg* on her way north to Scapa Flow. She was being cinematographed for the government's official record.

BELOW: *SMS Karlsruhe* heading up to Scapa Flow after the surrender of the German fleet in 1918.

RIGHT: *SMS Königsberg*, pictured on her way to Scapa, was the lead ship of the Königsberg class of light cruisers built during the First World War. She took the name of the earlier Königsberg, which was sunk during the Battle of Rufiji Delta in 1915. The new ship was laid down in 1914 at the AG Weser shipyard, launched in December 1915, and commissioned into the High Seas Fleet in August 1916.

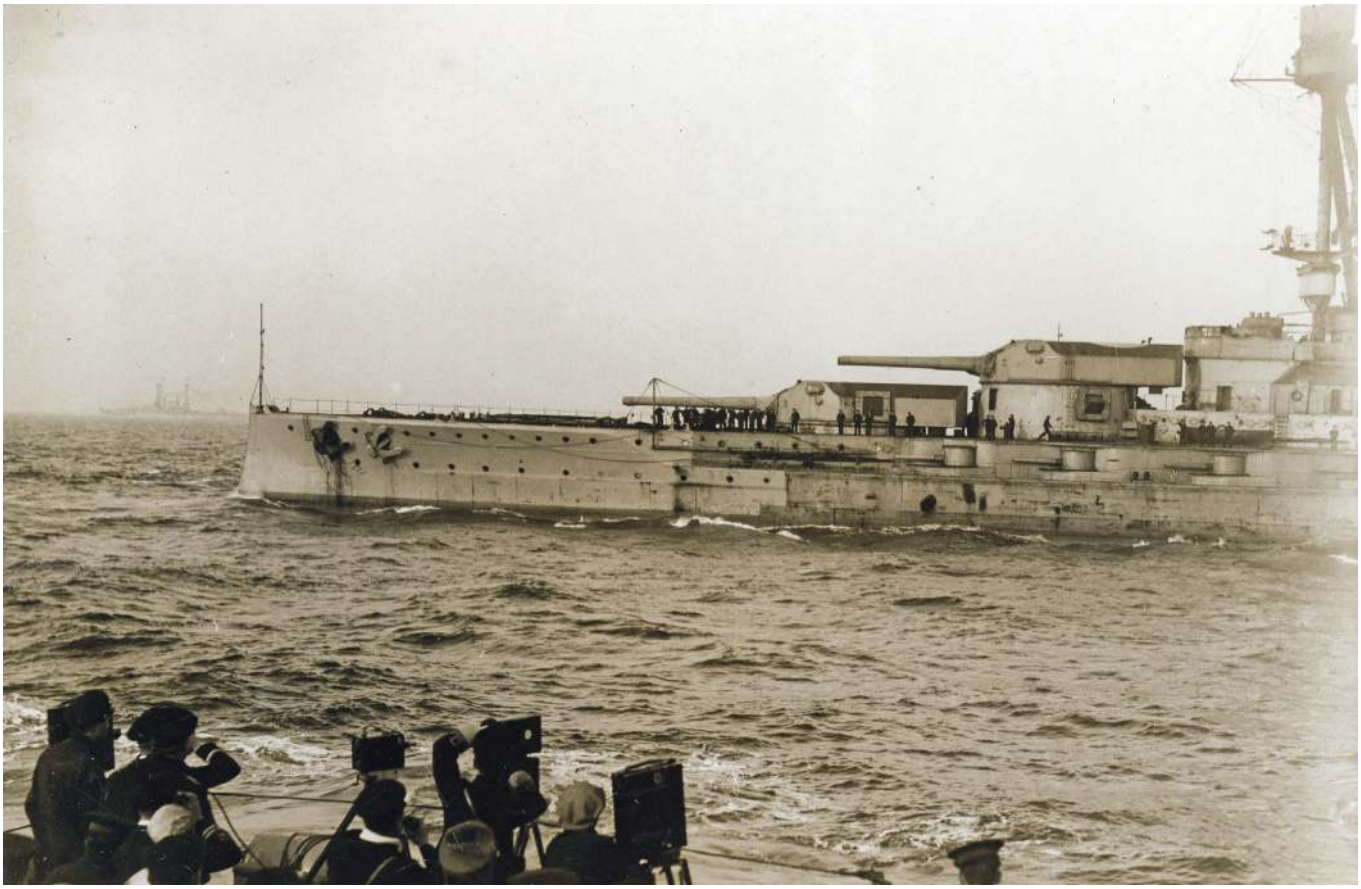


ABOVE: British sailors watching the German ships heading to Scapa Flow, with one shaking his fist at the surrendering fleet.

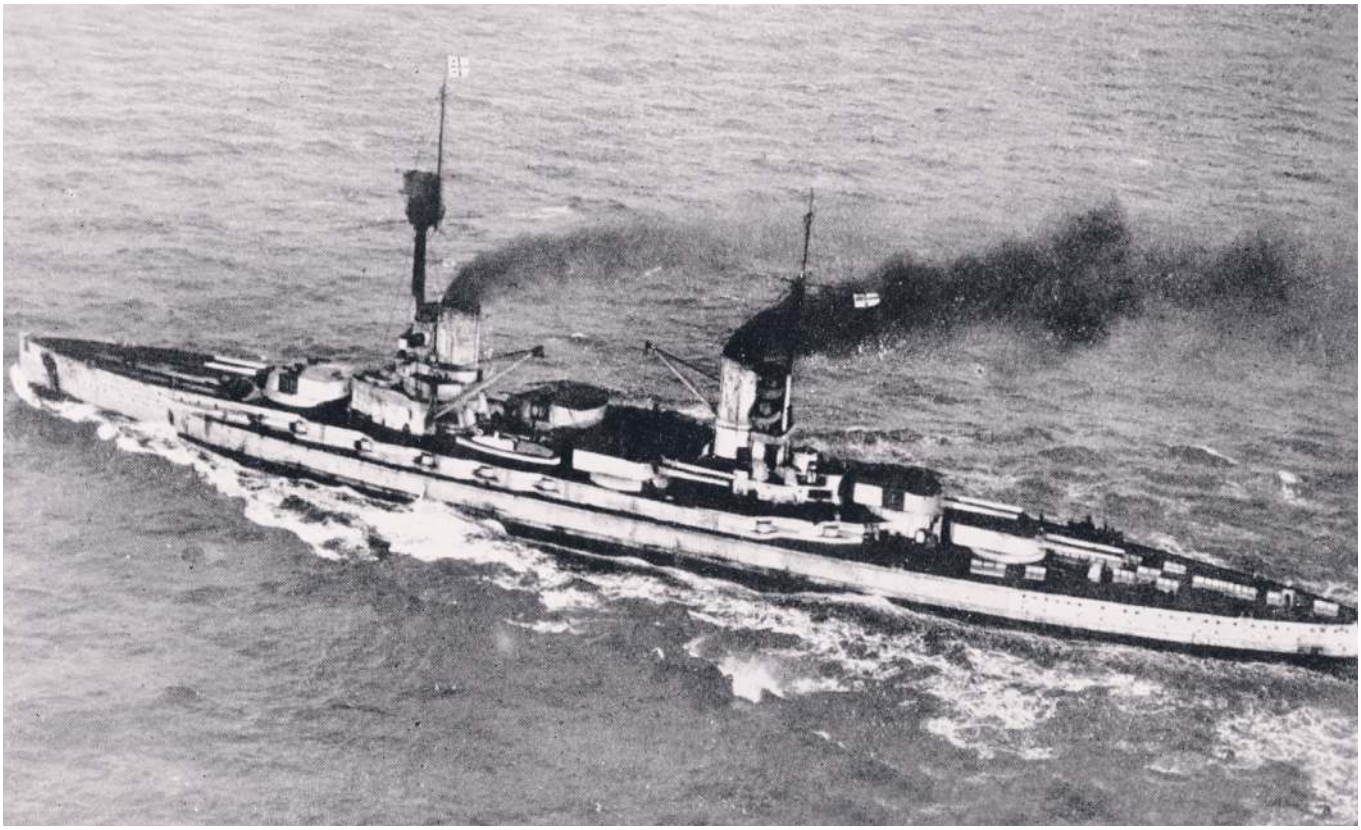


RIGHT: The battleship *Kaiser* was one of the German fleet that surrendered to the Royal Navy. The Kaiser class ships each carried ten 12-inch SK L/50 guns mounted in five twin turrets. One turret was mounted fore, two were mounted amidships (pictured), and the fourth and fifth turrets were mounted in a pair aft.

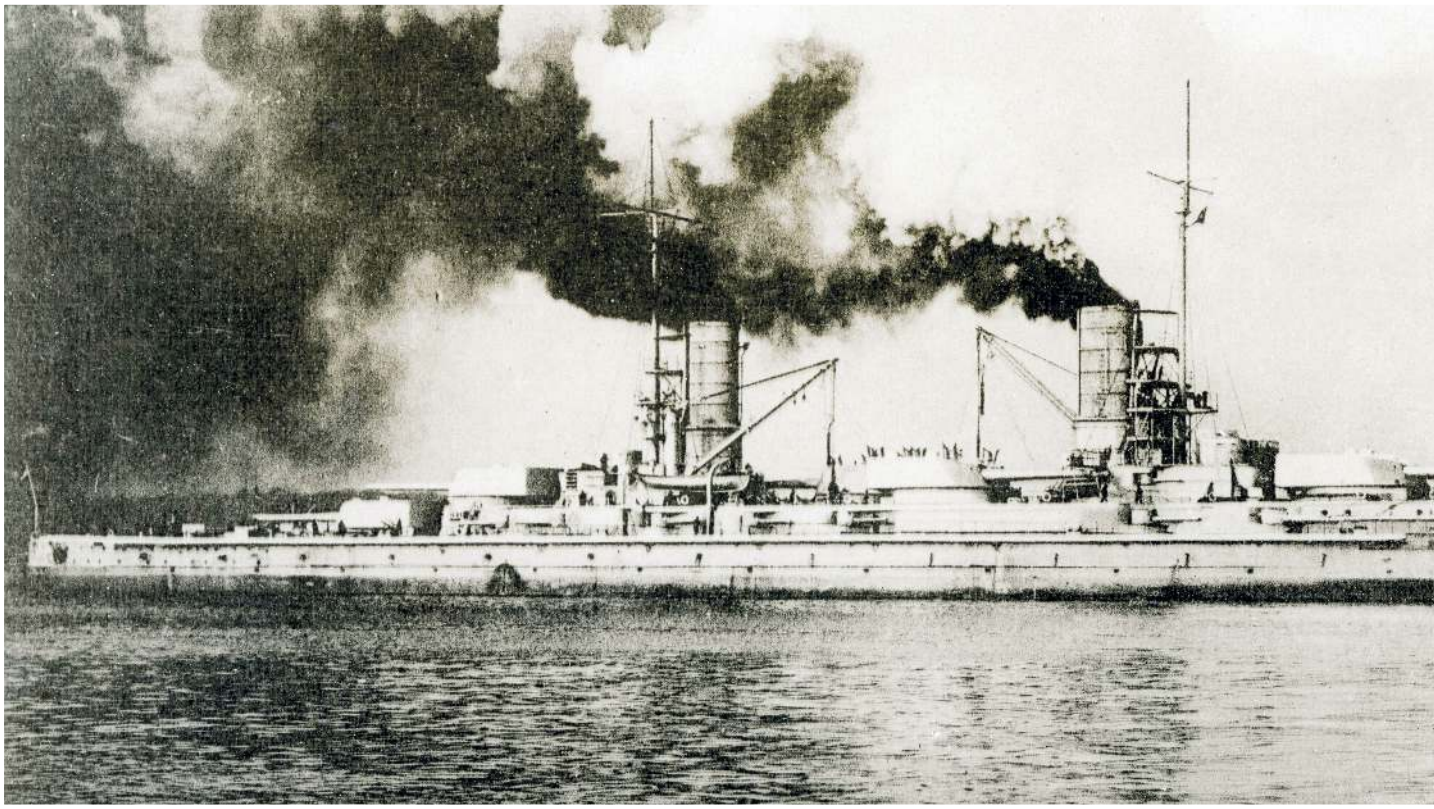
SMS Moltke heading into the Firth of Forth. Compared to her British equivalents, ships of the Indefatigable class, Moltke and her sister Goeben were significantly larger and better armoured.

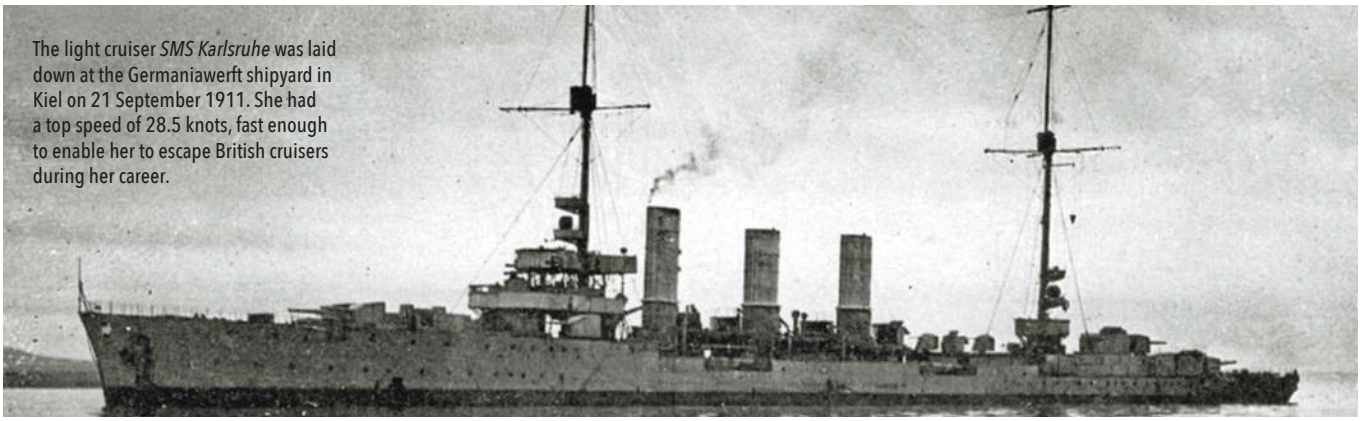


The battleship *Friedrich der Grosse* steaming to Scapa Flow for internment in November 1918. She had been commissioned into the German High Seas fleet on 15 October 1912 and was involved in many of the actions during the First World War. She was salvaged in April 1937.

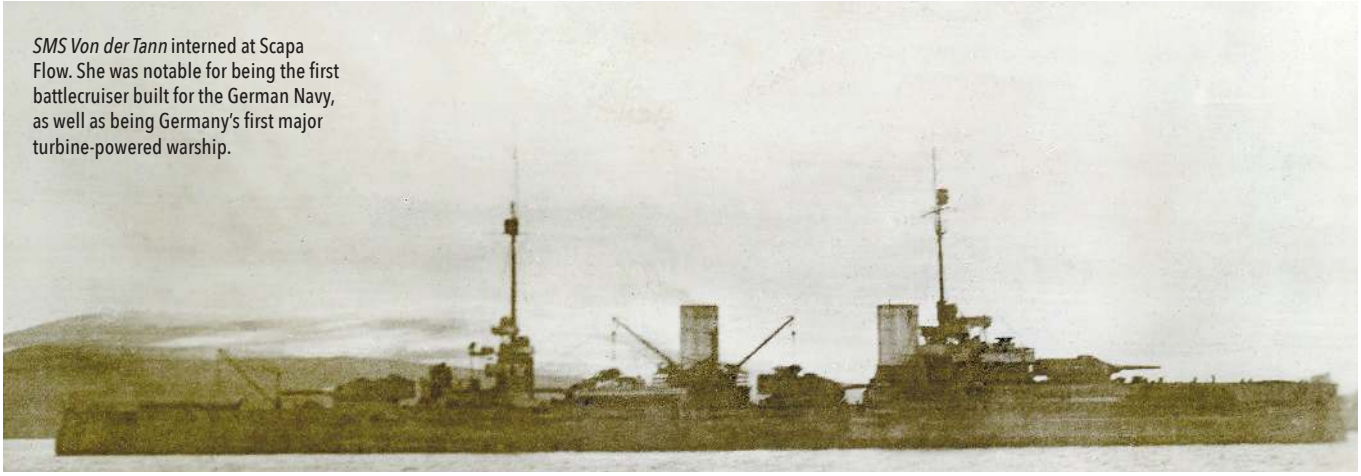


LEFT/ABOVE: *SMS Bayern* passes the British warships on her way into the Firth of Forth. The ship was the first German warship armed with eight 38cm (15-inch) SK L/45 guns. The main battery guns were arranged in four twin gun turrets, with two superfiring turrets each, fore and aft.

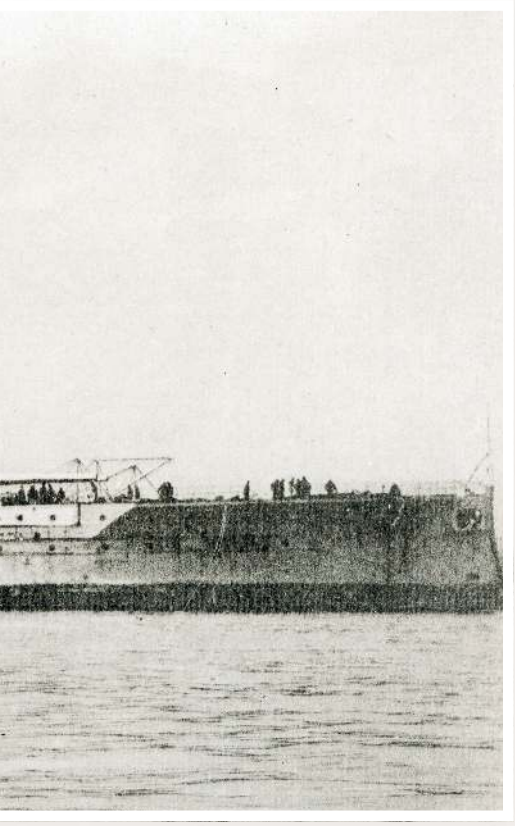




The light cruiser *SMS Karlsruhe* was laid down at the Germaniawerft shipyard in Kiel on 21 September 1911. She had a top speed of 28.5 knots, fast enough to enable her to escape British cruisers during her career.



SMS Von der Tann interned at Scapa Flow. She was notable for being the first battlecruiser built for the German Navy, as well as being Germany's first major turbine-powered warship.



ABOVE: *SMS Bayern* at anchor in Scapa Flow. The vessel was launched in February 1915 and entered service in July 1916, too late to take part in the Battle of Jutland. At the end of the war, from 23 September to early October 1918, Bayern served as the flagship of the Third Squadron.

BELOW: The Königsberg class light cruiser *SMS Nürnberg* was built by the Imperial Dockyard in Kiel; laid down in early 1906, she was launched in April of that year and was completed in April 1908. Nürnberg was armed with ten 4.1-inch guns, eight SK L/55 guns, and two submerged torpedo tubes. Her top speed was 23.4 knots. She served with the fleet briefly before being deployed overseas in 1910, being assigned to the East Asia Squadron. At the outbreak of World War I in August 1914, she was returning to the German naval base at Tsingtao from Mexican waters. She rejoined the rest of the Squadron, commanded by Vice Admiral Maximilian von Spee, which steamed across the Pacific Ocean and encountered a British squadron commanded by Rear Admiral Christopher Cradock. In the ensuing Battle of Coronel on 1 November, the British squadron was defeated; Nürnberg finished off the British cruiser *HMS Monmouth*. A month later, the Germans attempted to raid the British base in the Falkland Islands; a powerful British squadron that included a pair of battlecruisers was in port, commanded by Vice Admiral Doveton Sturdee. Sturdee's ships chased down and destroyed four of the five German cruisers; *HMS Kent* sank *Nürnberg*, with heavy loss of life.

Deliberate

AN OVERLOOKED ASPECT OF THE PEARL HARBOR BOMBING

RICHARD J. GESHEL, DO LCDR, MC, USN (RET)

While searching through YouTube for video to pass the time, I came across a roughly four-minute segment of a documentary titled *Death of the USS Arizona*'. I was shocked by the detail and clarity: capturing of two near misses to starboard, a silvery-whitish streak passed the number two turret prior to the ship's detonation, the height the bridge and foremast were tossed and the wave propagated by the bow's blow out crashing against Ford Island1. Detail absent in the pre-digitized, high definition state

After viewing it over a dozen times, I noticed something… something rather odd. I shared my observation with a friend[2] who identified the full length documentary '*Pearl Harbor Declassified*' that I had only seen a short segment. As expressed in the commentary: "These photographs are really like the Roseta stone, because they unlock the secrets of the Pearl Harbor raid"[3]. How prophetic that statement would become.

My observation began an intense investigation, combing through every book and video media on the subject of Pearl Harbor in my personal, as well as within local public and university libraries. An internet search resulted in declassified after action and War Damage Reports for many of the ships damaged that fateful day. I am convinced of a 75-year oversight by American investigators evidenced in the battle damage inflicted by the high level bombers.

OPERATION HAWAII

In summary, it consisted of secretly planning and training, then transporting over 400 aircraft aboard six carriers, launching roughly 360 in two distinct waves to attack specified targets around the harbor and island of Oahu. Their intended purpose: deny countering Japanese military expansion plans in the south Pacific.

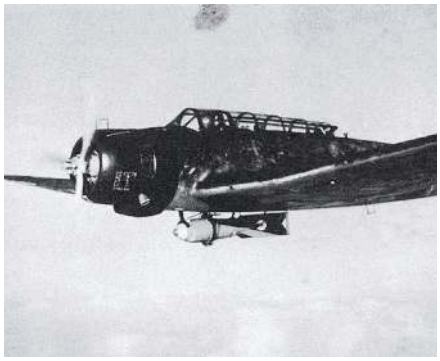
Originally, Admiral Isoruku Yamamoto, the Commander in Chief of the Combined Imperial Fleet, who proposed the idea to attack Pearl Harbor at the outset of war with the United States, leaned toward a torpedo only attack. However, the practicality of a single means of attacking ships at harbor was itself 'torpedoed' by the man who orchestrated the actual battle plan, Commander Minoru Genda. One of the most experienced aviators Genda once advocated that 'all battleships then being built should be converted to carriers, and the rest turned into scarp iron'[4]. He grasped the significance of airpower and foresaw future naval warfare: the eclipsement of the ship-of-the-line duals by vast numbers of in-flight aircraft.

Aerial bombing was called for at the outset of planning. Commander Mitsuo Fuchida, hand-picked to train and lead the attack, agreed that "we cannot rely only on torpedoes. Nor can we expect too much from dive bombing because the missiles are too light to penetrate the heavy armour of a United States battleship".[4] Fuchida, while discussing with Genda the utilization of Japan's naval air strength, stressed the American habit of double mooring their battleships, protecting the inboard ship from torpedo attack[4]. They decided that both high level and dive bombers would be deployed, but would be assigned differing targets dependent upon the differing attacking waves.[4]

The attack plan was multi-prong. At the outset dive bombing and fighter strafing of local airbases initiated the attack to deny American airpower from counter attacking. Simultaneously, torpedo bombers would drop in low over the harbor and launch their torpedoes. Within minutes of the torpedo bombers hitting Battleship Row, the high level bombers, held over Barbers Point (southwest of the harbor) by Fuchida, would begin their run. Execution was nearly precisely as planned.

HIGH LEVEL BOMBING

Prior to departure from Hitokappu Bay, the anchorage rendezvous for the Pearl Harbor attack force, 'Bombing drills against stationary targets' were 'carried out as often as possible. As far as bombing against stationary targets were concerned, the men came to have a firm confidence of destroying many ships with a single blow'[5]. During training at the Kashima bombing range, a 20 square metre plate of German steel was set up to test bomb penetration[4]. Until the bomb shoulder was shaved[4], improving its aerodynamics, did effective puncture results occur. Training flights hitting a realistic target, an exact mockup replica of the battleship USS *West Virginia (BB-*



ABOVE: Picture 2. Classroom replica of a 796.8kg armour-piercing bomb used on US battleships during the Pearl Harbor attacks. Japanese-aviation.forumeiros.com/t41-21-pearl-harbor-raid-soryu-s-high-level-bombers.

LEFT: Picture 1. High level Kate bomber with Type 99 bomb attached.

48)[4] indicated a minimum altitude of 3,000 metres attained the penetrative momentum required to pierce a battleship's deck armour, yet allow a high percentage of direct hits[4].

Practice indicated multiple changes were required to attain maximal efficacy. Rather than fly in a nine plane[4] 'billiards triangle' formation, the Japanese developed a five-plane inverted tight 'V' / arrow formation.[4-6] They initiated training a permanent tandem pilot / bombardier duet with the intent of creating the inter-working of a team that ultimately began to function as one. They also created a 'bomb lead plane' to lead a flight of bombers 'entering the bomb run to a take a precise aim at the target, while the rest of the bombers followed suit'.[5] In addition a signal system was developed to simultaneously drop their deadly cargo[3] in the hopes that such a concentration of ordinance would produce results. "They've calculated that one of five will score a hit on a 100-foot-wide battleship."[6] Last, the high level bombers traveled against the wind 'to ensure the greatest possible accuracy in bombing'.[4]

Before the attack, Fuchida, not too optimistic about the results, instructed his bombardiers to ensure they had the best possible sighting before releasing their bomb and, if necessary, make multiple passes before releasing over their target.[4] Fuchida also devised a chart for bombing ships moored in pairs, a customary practice along Battleship Row. He stressed 'strike ships doubly berthed because' they 'presented a larger target' rather than ships berthed singly.[4] On the afternoon of 6 December, the order was given for 'the bombing targets of the [high] level bombing units will be four battleships (*Tennessee (BB-43), California (BB-44), Maryland (BB-46)* and *West Virginia* mooring pillars of District A'.[5] (This is the ONLY direct Japanese reference to the Bomb Plot message).

Forty-nine Type 97 Kate high level bombers (Photo 1), carrying a behemoth 1,750-pound (796.9 kilogram) bomb (Picture 2), converted from 16in projectile, participated in bombarding the battleships[4]. The bomb, designated Type 99-No. 80-5, was eight feet in length, machined for aerodynamics and fitted with a contact detonation cap and a tail fin[4] so each bomb would fall tip down[7]. Each one was precious. "Not a single bomb is to be dropped carelessly," Fuchida told his bomber groups[8].

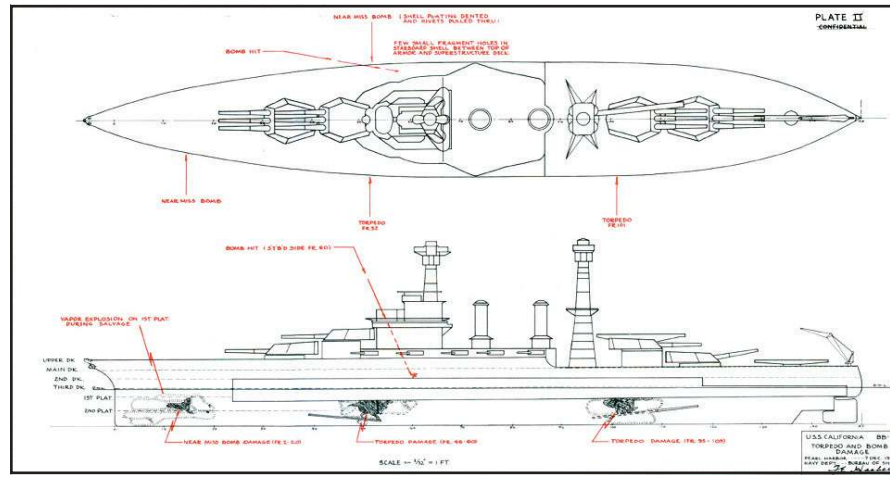
From the ten flights of grouped aircraft, 13 of the 49 bombs available hit an intended target, attaining a 26.53 percent hit rate, a nearly a three-fold improvement over the ten percent achieved at the beginning of the year before training began. Additionally, numerous near-misses caused underwater damage to two of the battleships.

HIGH LEVEL BOMBING DAMAGE ON BATTLESHIP ROW

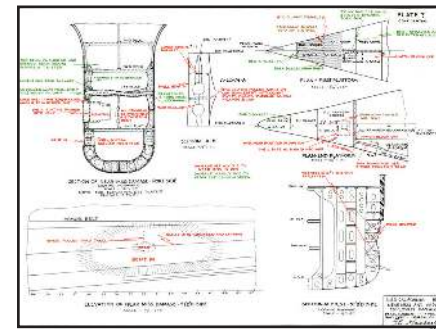
The battleships listed in the following paragraphs are in order as moored along Ford Island, from west to east with outboard doubly moored ships listed first.

USS CALIFORNIA (BB-44)

Beginning with California, 'a horizontal bombing group dropped four bombs' which fell harmlessly in the lagoon to starboard-10 at about 0825. The outer hull, between the armour belt and the turn of the bottom between frames 46 to 57 (approximate 44 feet in length) was bent inwards. This caused leaking from loosened frame and seam rivets[10]. When viewed overhead, these near misses correspond to about frame 50, which lies between Turret 2 and the ➤



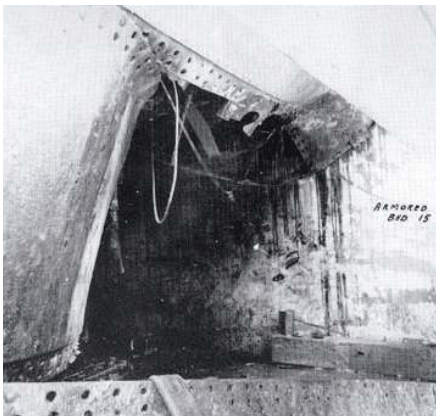
ABOVE: Drawing 1. Schematic of U.S.S. California identifying torpedo and bomb hits / near misses. Plate II from *War Damage Report No. 21: U.S.S. California Torpedo and Bomb Damage, December 7, 1941, Pearl Harbor.* Bureau of Ships, Navy Department. 28 November, 1942

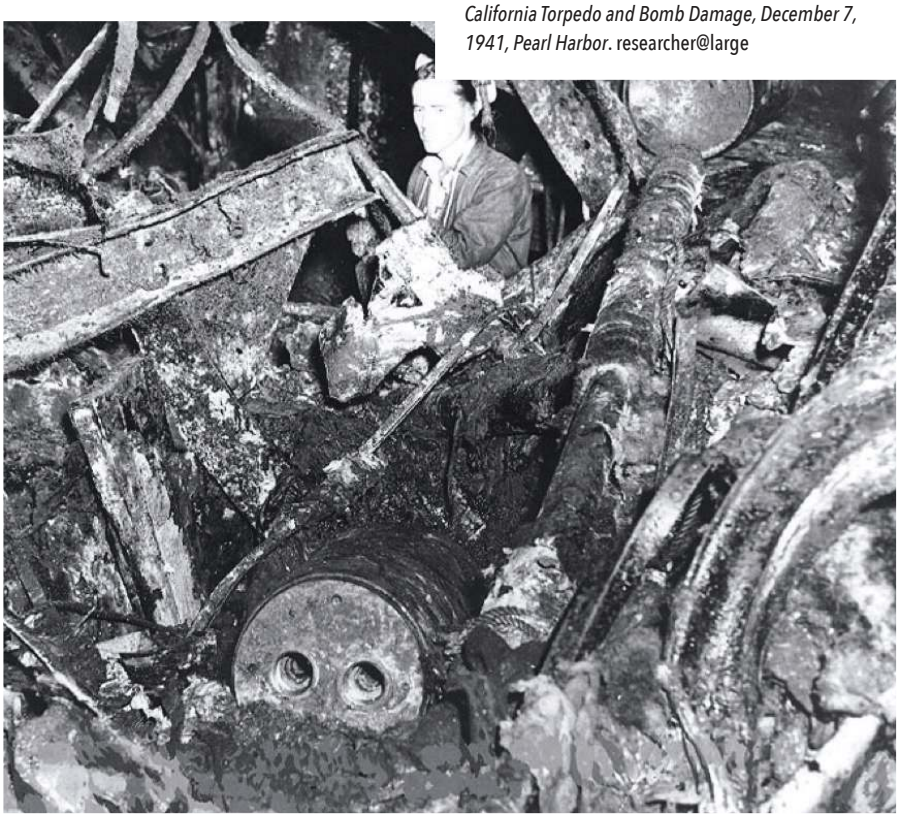


RIGHT: Drawing 2. Near miss damage, port side bow, U.S.S. California. Plate VI from *Damage Report No. 21: U.S.S. California Torpedo and Bomb Damage, December 7, 1941, Pearl Harbor.* Bureau of Ships, Navy Department. 28 November, 1942

conning tower citadel (Drawing 1). Additionally, splinter and fragmentation damage to the starboard upper structure was later found at frame 5210.

Five minutes prior to this quartet of misses, a 'heavy shock was felt'[10]. Four intersecting shock rings off the port bow was observed from the battle-top atop the mainmast[11] (Drawing 2). 'All compartments forward of bulkhead 21 on the first platform, and three below on the second platform were flooded immediately'[10]. A hull penetration occurred between frames ten to 15 with the outer hull blown into a storage space from frames 15 to 20[10] (Picture 3).





USS OKLAHOMA (BB-37) AND USS MARYLAND (BB-46)

Aside from upwards of nine torpedoes hits, *Oklahoma* was untouched by the high level bombers. However, an Action Report documents[13] 'one bomb on or very close to port bow at frame 30' while another 'bomb close aboard, port side, at frame 80' (Picture 14).

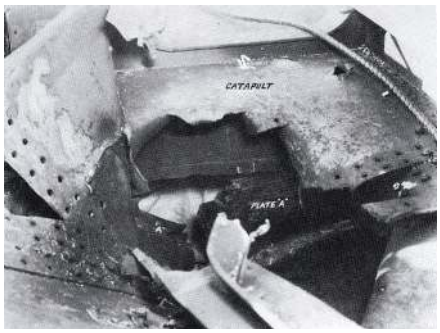
Her inboard partner, *Maryland*, was the least damage of all the battleships that day. Witnessed by Fuchida[13], who watched from a peep hole, she was struck by two bombs[14-18] (Picture 14), with two observed near misses[19]. The first detonated when it hit the awning rope strung over the forecastle, at frame 13, causing fragmentation pitting and gouging of the anchor and paravine chains, hatches and coaming with pieces penetrating the compartment immediately below[14-18]. The second caused flooding after piercing the ship at the 22-foot water level[14] at roughly frame ten[15-18]. Bomb fragmentation punctured the hull with upwards of 3in holes through the side and bottom below the turn of the bilge[18].

LEFT: Picture 3. Looking aft. Details of bomb near-miss damage between first and second platforms. Photo 25: April 13, 1942 *Damage Report No. 21: U.S.S. California Torpedo and Bomb Damage, December 7, 1941, Pearl Harbor*. researcher@large

USS WEST VIRGINIA (BB-48) AND USS TENNESSEE (BB-43)

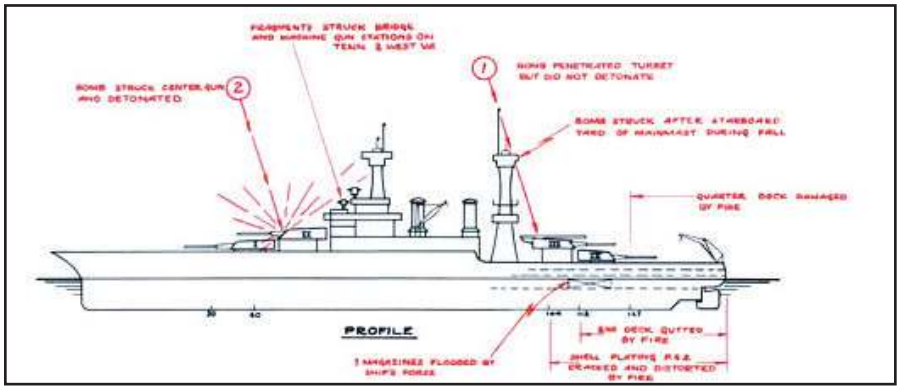
A total of four Type-99 bombs would hit *Tennessee* and *West Virginia* (Picture 14). The first broke through the 5in top plate, starboard side of *West Virginia's* Turret 3, igniting a gasoline fire, wrecking the float planes atop the catapult[20-21]. It caused damage to the slide of the turrets left gun[22]. A second struck port side passing through the foretop mast, the searchlight platform and signal bridge, crashed through the boat deck at frame 70, terminating at the second deck (Picture 4)[20-21]. Both bombs were later recovered.

Simultaneous of *West Virginia's* hit atop Turret 3, one struck *Tennessee* (Drawing 4), sheared the mainmast starboard after yardarm, passed through the high catapult carriage and broke apart after penetrating the top of Turret 3 [19, 22-24], damaging the training gear and rammers and wrecked the range finder[23] (Pictures 5 and 6). Its pieces were recovered. Another struck the centre gun of Turret 2 (Pictures 7 and 8) [19, 22-24]. After cratering the gun barrel, causing a 13ft crack along the sleeve and slightly depressing the gun inferiorly, it shrapnelized, spraying the bridges of both ships (and *Tennessee's* foretop) with fragmented metal [19, 23-24] (Picture 925). It is attributed to mortally wounding Captain Mervyn Bennion of the *West Virginia* [14, 23, 26].

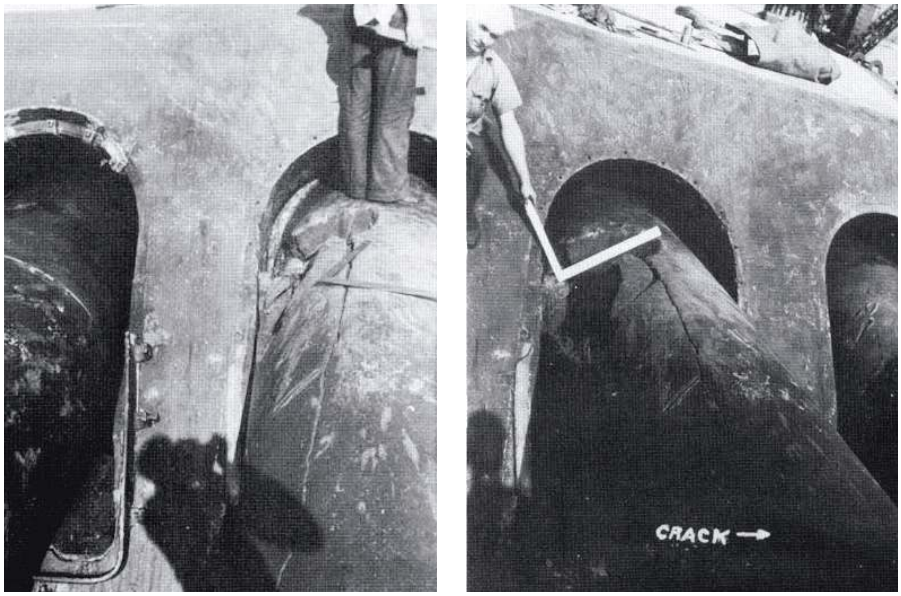


ABOVE: Picture 5. Top of Turret III looking down through the hole in the catapult at the opening through which the bomb penetrated. Photo 3, War Damage Report No. 22: U.S.S. Tennessee Bomb Damage, December 7, 1941, Pearl Harbor. researcher@large

LEFT: Picture 4. Unexploded bomb on 2nd deck, Port side U.S.S. West Virginia (BB-48). Source: https://www.history.navy.mil/our-collections/photography/wars-and-events/world-war-ii/pearl-harbor-raid/post-attack-ship-salvage/salvage-and-repair-of-uss-west-virginia--december-1941---april-1/NH-64305.html



Drawing 4. Sillouhette of U.S.S Tennessee bomb hits upon #2 and #3 Turrets. Plate I, *War Damage Report No. 22: U.S.S. Tennessee Bomb Damage, December 7, 1941, Pearl Harbor*. researcher@large



Pictures 7 and 8. Center gun of Turret II shoving the hole gouged out by the "bomb and the crack in "C" hoop. Right and center guns Turret II. Note the coaming around the right gun port partly blown off by the explosion. Photo's No. 7 and 8, War Damage Report No. 22: U.S.S. Tennessee Bomb Damage, December 7, 1941, Pearl Harbor. researcher@large

Picture 9. Shrapnel scaring upon the conning tower from forward bomb hit, U.S.S. Tennessee. Source: Photo 6-54, Goldestein, Donald M, Dillon, Katherine V. and Wenger, J. Michael. *The Way It Was: Pearl Harbor, The Original Photographs*. Brassey's, 22883 Quicksilver Dr., Dulles, VA. 20166. 1995;79.

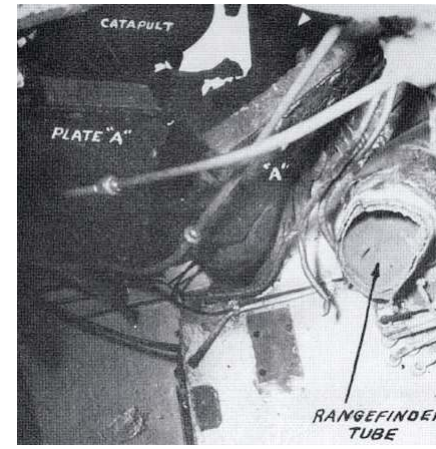


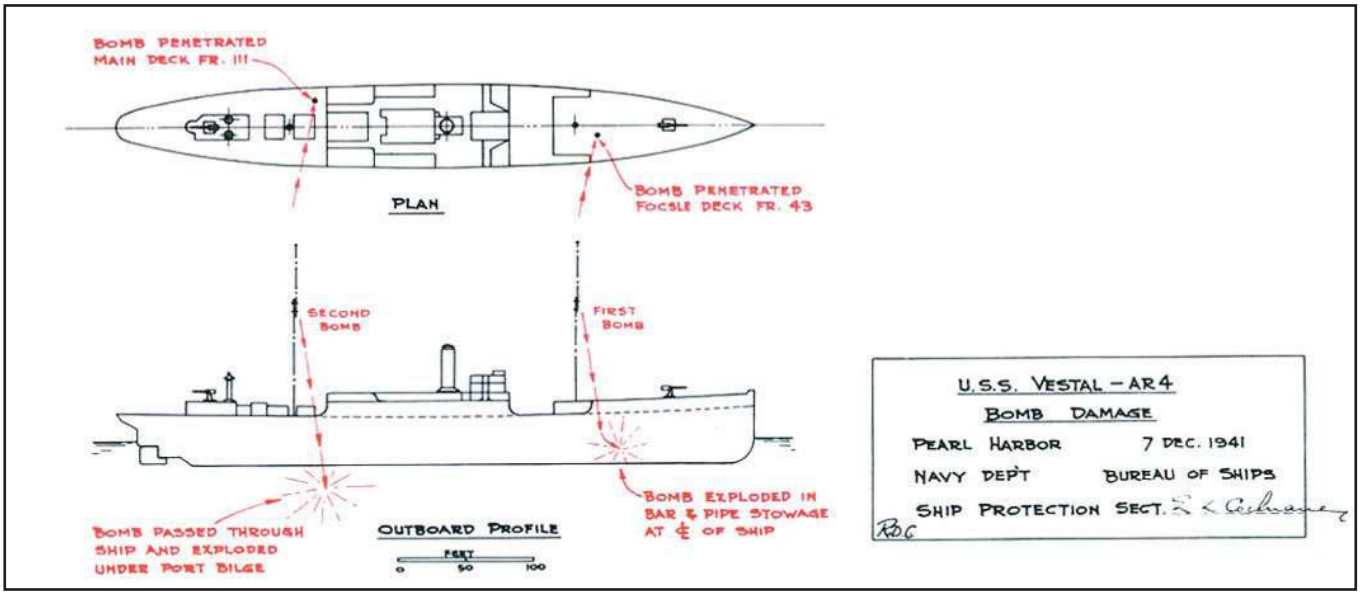
Photo 6. Inside Turret III, looking upwards, showing the hole in the catapult, the tear in plate "A" and the severed rangefinder tube. Photo No. 5, War Damage Report No. 22: U.S.S. Tennessee Bomb Damage, December 7, 1941, Pearl Harbor. researcher@large

Three near misses are recollected by Lt Heijero Abe's flight of aircraft that scored the simultaneous hits upon *Tennessee* and *West Virginia*[19]. May have caused further port side underwater damage to *West Virginia* as no identified damage is noted suffered by the *Tennessee*.

USS VESTAL (AR-4) AND USS ARIZONA (BB-39)

Vestal, outboard of *Arizona*, took two bomb hits (Drawing 5). The first struck the forecastle about a foot aft of frame 43, eight feet to starboard of centerline[4, 19, 26]. It penetrated four decks, was deflected by rod, bar and pipe stock and exploded on centerline about frame 3926. This hit occurred simultaneous of *Arizona's* on Turret 4. The second struck at frame 110, port side[4] and passed completely through the ship, presumably exploding underwater close aboard as seams and rivets were loosened, as well as the inner bottom was raised between frames 105 to 112[26].

The initial bomb hit on *Arizona* struck aft (Picture 10), glanced off the starboard side-plate, near the faceplate angle[27] of Turret 4 (Pictures 11 and 12) entered the starboard side of the quarterdeck at frame 123. This bomb exploding in the Captain's pantry, killing most of the officers of the ship[28-29] and caused a fire back aft. In an interview recorded on April 23, 2011, John Anderson, an *Arizona* survivor, recounts his tale aboard the ship during the attack. Mr. Anderson recalls an argument between himself and ➤



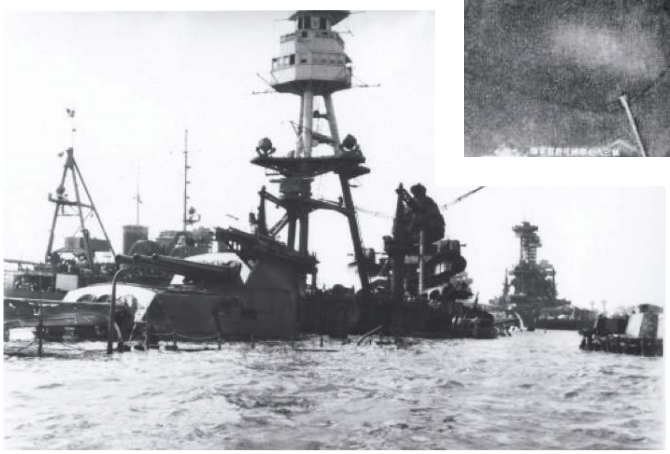
Drawing 5. Depiction of bomb trajectory / hits upon U.S.S. Vestal (AR-4). Plate I, *War Damage Report No. 12: U.S.S. Vestal Bomb Damage, December 7, 1941, Pearl Harbor.* researcher@large

LCDR Fugua, the only remaining senior office aboard, regarding abandoning the ship. Mr. Anderson states that "I'm not getting off, my (twin) brother is here someplace, I got to find him, I got to find him." LCDR Fuqua retorts "he can't have made it… this place is going to blow, that magazine under you was almost hit by one, it's libel to go."[30]

Minutes later, filmed by Dr. Haakenson from the *USS Solace (AH-5)*1, two starboard near misses preceded, reported by the quartermaster, a bomb hit "either by or on No. 2 Turret" [4, 31] to Captain Van Valkenburgh. Seven seconds passed… then it detonated.

Two other Type-99 bombs landed upon *Arizona*. During the inaugural salvage dive on the ship, a bomb was found under a lathe within the general workshop on the third deck 32. After review of *Arizona's* deck plans from 1934, surmise that the general work shop was moved to an outboard compartment, D-506, port side between frames 115-12533 during a later overhaul period (Drawing 6). This is based upon the divers' movement of travel inside the ship described within *Descent into Darkness*[32]. Another was found upright, in an amidships walk-in meat freezer on the third deck[32].

ABOVE: Picture 10. Overhead view of Battleship Row, photographed from Japanese aircraft. Source: National Archives photo 80G-30551: Pearl Harbor Attack, 7 December 1941. Vertical aerial view of "Battleship Row. https://www.flickr.com/photos/127906254@N06/21032459383/in/album-72157648687771443/



LEFT: Picture 11. Aft, starboard view of USS Arizona soon after Pearl Harbor attack. Red arrow pointing toward glancing hit upon aft starboard side-plate of Turret 4. Source: National Archives online catalog, photo 80-G-32609. https://catalog.archives.gov/id/12009046

Picture 12. Salvage removal of Turrets 3 and 4, USS Arizona, photographed 2/25/1942. Red arrow pointing toward bomb hit on Turret 4. Source: https://www.pinterest.com/pin/447263806713587693

USS NEVADA (BB-36)

The *Nevada* was positioned singly behind *Arizona* at the most easterly mooring quays. She escaped with reports of several bombs fell close aboard to port[4], recollected by the Japanese as five near misses[19].

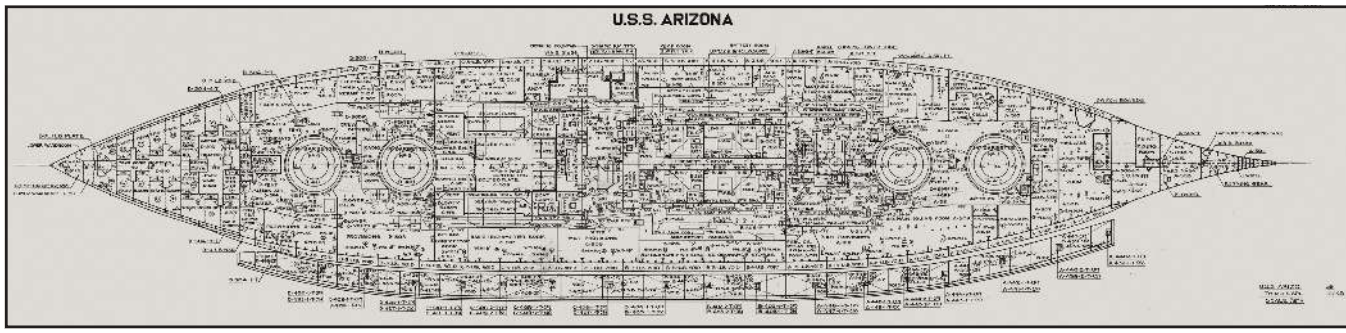
I contend that *Nevada* was struck during her channel sortie by three 800kg bombs by high level bombers with payloads to deliver[34-35]. The ship's Chief Engineer, returning to *Nevada* down channel near the *California*, witnessed a close cluster of three bombs[35] (Drawing 7): Two struck the forecastle over officer's country at frame 15. One pierced the side at the second deck level and caused near miss damage to the starboard hull, while the other penetrated a gasoline tank, detonating between the tank and shell on the port side (Drawing 7). The third stuck just off midline, rupturing the foredeck at frame 27 beneath the guns of Turret 1, its detonation thrusted the anchor chain capstan heads upward so violently they struck the outboard guns barrels36 (Picture 13), wrecking the Turret's internal elevating mechanism35. This bomb penetrated three total decks, dented the 5in armored decking37 immediately superior of the forward 14in magazine, ricocheted inboard and detonated35 (Drawing 7).

OBSERVATION AND CONCLUSION

An 'after action report' conducted by the Japanese in August of 1942 concluded '…the Hawaii operation proved their magnificent effectiveness' regarding the use of the 800kg bombs[5]. 'A single hit… could sink a present-type battleship instantly *when it hit on certain points*[5].

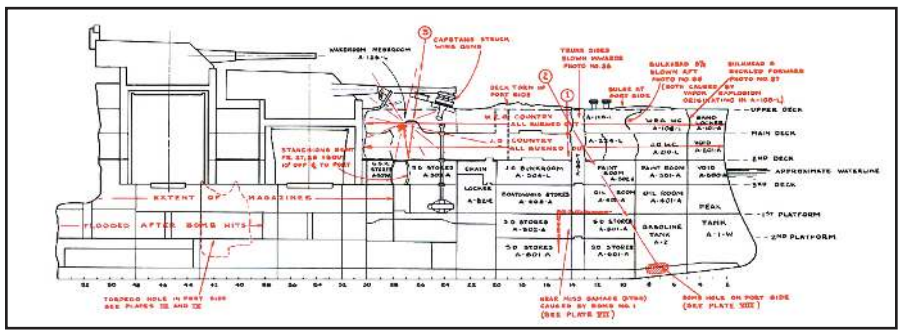
Following the bombing pattern, a particular landmark on the battleships become clear as the intended target of the high level bombers. From the four near misses to port and the four near misses to starboard of the *California*; the near miss at frame 30, port side, of *Oklahoma*; the hit on the centre gun of Turret 2 of the *Tennessee*; the hit on Turret 3 of both the *Tennessee* and *West Virginia*; the two near misses to starboard, the hit abreast of *Arizona's* Turret 2 that ultimately destroyed the ship, coupled with the hit on Turret 4, the bomb found portside aft on the third deck, as well as the near misses that straddled the *Arizona* and *Vestal* (Picture 8); the two hits on the *Vestal*, correlating their location against that of *Arizona*; and finally the hit on *Nevada* that dented the deck immediately superior of the forward 14in magazine.

According to Raoul Lanning, a Pearl Harbor survivor from the *Tennessee*[38]: "We took a bomb hit on our turret. It hit the centre gun of our turret, near the chase, which is where the barrel of the gun goes into the turret itself. It was only a few inches off centre. And what a lot of people might not realize if that had been over probably 12 inches it would have gone right down between the two barrels of the left gun and centre gun, we would have been *Arizona* number 2 because the black powder magazines were down in that area. And we wouldn't have made it. So, fate was on our side." ➤

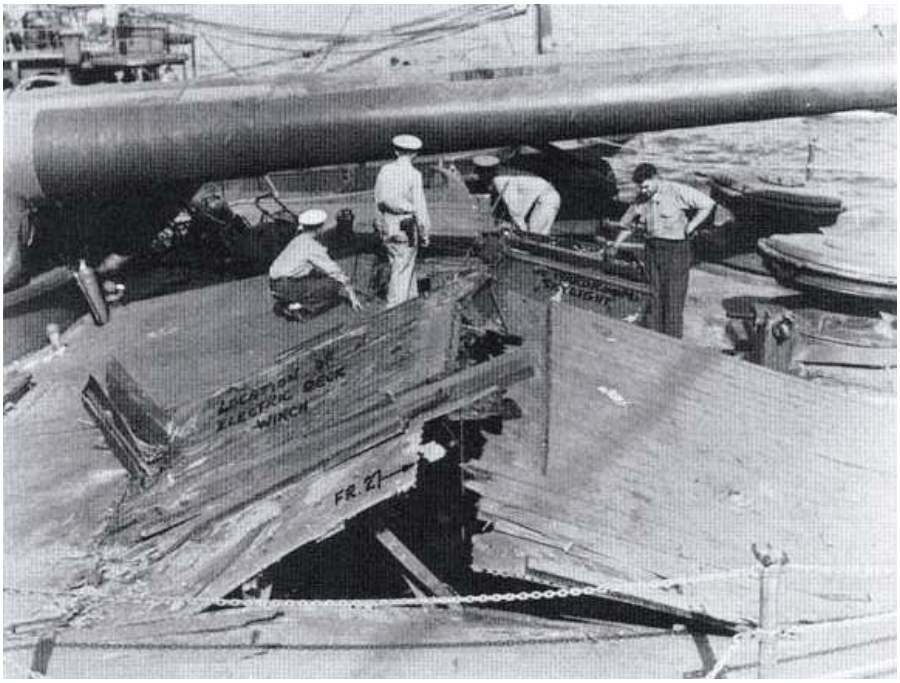


Drawing 6. Deck plans for third deck, USS Arizona31.

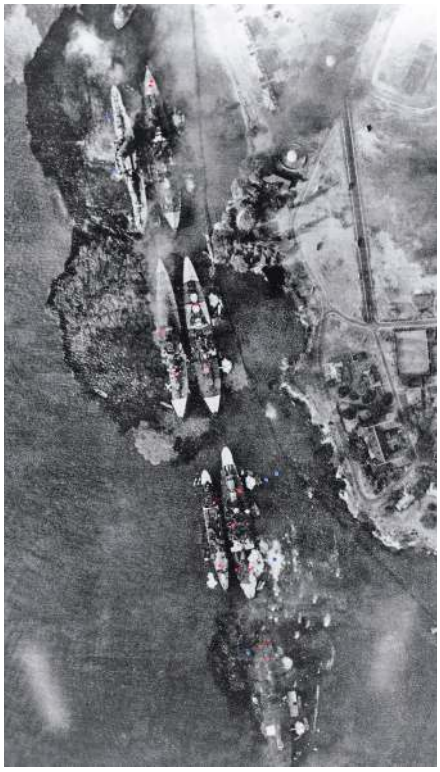
This may be the bomb documented to have hit at 'frame 73 port side of boat deck just forward of the incinerator, by No. 6 Antiaircraft gun'[27] and from a third bombing run witness by abandoning personnel[29] following the forward magazine detonation. Bureau of Ordnance analysis identified the "bomb" as a former 15in U.S. Coastal artillery shell, sold to Japan as scrap iron, its manufacture 'imprint was clearly visible stamped into the base of the shell'[32].



Drawing 7. Diagram of internal bomb damage, USS *Nevada*. Plate V, *War Damage Report No. 17: U.S.S. Nevada Torpedo and Bomb Damage, December 7, 1941, Pearl Harbor*. researcher@large



Picture 13. Starboard portion of the break in the upper deck at frame 27, caused by the explosion of bomb No. 3 between the main and second decks. Photo 20, *War Damage Report No. 17: U.S.S. Nevada Torpedo and Bomb Damage, December 7, 1941, Pearl Harbor*. researcher@large



Picture 14. Red dots indicate hits; blue dots indicate near misses. (U.S.S. California hits / missed not in photograph).

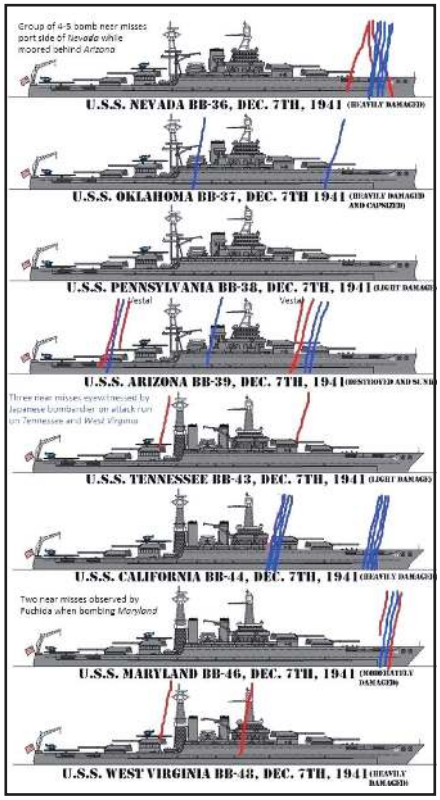
Utilizing the Museum of the U.S. Navy photo 80-G-30551 (Picture 14), adding in bomb hits and near misses, together with a Pinterest drawing of the battleship on profile (Drawing 8) clearly demonstrates what has been overlooked for 75 years: The bomb patterning clearly indicates *purposeful* targeted of the battleship magazines.

Of the 163 pieces of written and film media I read and viewed (Bibliography and Appendix A), I found two that describe my observation. Both, *At Dawn We Slept* and *The Pearl Harbor Papers* quote the same source: Minoru Genda [4-5]. 'For the horizontal bombers Genda had a seemingly impossible dream. One night... he pointed out the flaw in their plan: "But the depth of the water in Pearl Harbor is only 12 metres and even though we achieve much damage the enemy can refloat the ships." Desiring maximal damage, Genda declared, "If your bomb hits directly beside the turret and if it explodes in the powder magazine the ship will be reduced to fragments."[4, 39]

Aside from Gordon Prange no other author, historian or 'authority' on the subject of Pearl Harbor has concluded what happened to the *Arizona* was not a "lucky shot". It was purposeful, designed to inflict not only maximal damage, to ensure the destruction of the targeted ship. "The converted shells were an all or nothing weapon; either they would do very little damage, or they would completely wreck a battleship[20]." Although Thomas Hone concludes design flaws contributed to the damage inflicted, he does not identify deliberate targeting.

The movie *Tora! Tora! Tora!* depicts bombardier training utilizing a large canvas map slowly drug along the hanger deck[40]. The bombardier credited with the destruction of *Arizona*, Petty Officer Noboru Kanai, 'Every morning and afternoon he climbed into his plane in the hanger to run through bombing procedures.'[4] His tenacity resulted in the most catastrophic single loss of life in United States naval history, and became the iconic event of the entire attack[41].

Had the Japanese had better sights, the results may have been far more devastating. The total loss of two or more battleships (*Tennessee* and *West Virginia* definitely), with further thousands perishing. Luckily for the *Nevada*, had the bomb penetrated into her forward 14in magazine, she'd have suffered no further damage. Her magazines were emptied the previous afternoon[42]. ■



Drawing 8. Profile view of Battleships with estimated direct (Red) and near (Blue) bomb hits from 800kg bombs. Source: https://www.pinterest.com/pin/297659856603237876/

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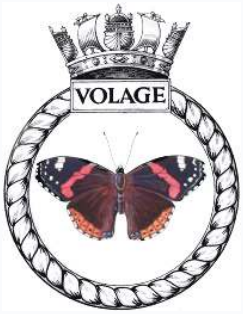


HMS VOLAGE 1944-1972

DEREK FOX

During the 1980s, Portsmouth Naval base was home to the Royal Navy's latest warships, bristling with radar and missile technology. Alongside its jetties were the newest aircraft carriers, destroyers and frigates, but if a visitor had ventured further into the upper reaches of the harbour in among the tidal creeks, they would have discovered an old Second World War warship which had settled deep in the mud alongside a local scrap yard.

As time went by, the vessel took on more of a list, and as the rust took a hold the pennant number gradually faded. The ship was the ex - HMS *Vo lage*, and few would have known by looking at the rusty hulk that this vessel had seen much action in her life, and also tragedy. She had served the Royal Navy well before finally succumbing to the cutter's torch.

The *Volage* (R41) began life during the darkest days of the Second World War when she was ordered on 1 September 1941 as one of the 1,806-ton V-class fleet destroyers of the 8th Emergency Flotilla under the War emergency program. She was laid down on 31 December 1942 at shipbuilders J.S. Whites of Cowes, Isle of Wight, and launched on 15 December 1943, being the fifth warship in the Royal Navy to carry the name.

The ship was adopted by the Yorkshire town of Pocklington which had helped raise money to build the ship during a Warship Week. After successful contractor's trials, *Volage* was commissioned on 26 May 1944, and in June the ship proceeded to Scapa Flow to work up. July 1944 saw the *Volage* join the 26th Destroyer Flotilla of the Home Fleet, and in August the ship deployed with the Flotilla to escort the carriers *Indefatigable*, *Trumpeter* and *Nabob*, along with the cruisers *Kent* and *Devonshire*, for Operation Offspring – an attack on shipping and shore targets in Norway.

After patrolling in the North West approaches, *Volage* formed part of the escort destroyer screen for convoy JW 60 to Russia on 17 September. This was a powerful escort force comprising the aircraft carriers *Campania* and *Striker*, the battleship *Rodney*, cruiser *Diadem* and nine destroyers, and was intended to counter any attack on the convoy by the German battleship *Tirpitz*, should she venture out. In the event, the voyage was uneventful and the convoy arrived

Ex HMS *Volage* alongside breakers - Portsmouth Mar 1976 (Copyright Giorgio Arra)

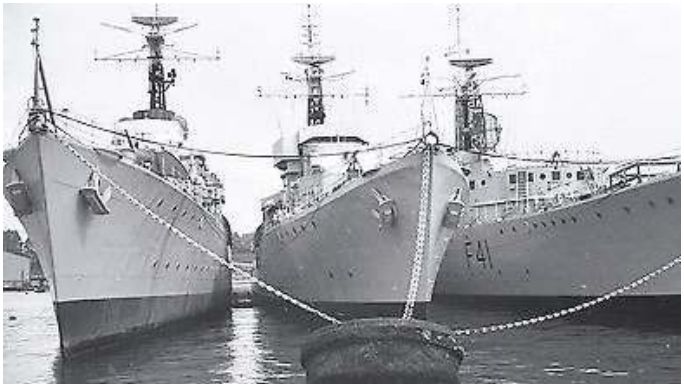
HMS *Volage* (George Knight).

unscathed. HMS *Volage* then joined Force 9 in October 1944 as escort to the carriers *Trumpeter* and *Fencer*, along with the cruiser *Euryalus*, destroyers *Scorpion*, *Myngs*, *Serapis*, and Canadian ships *Algonquin* and *Sioux* on Operation Lycidas – an attack on shipping off the coast of Norway, and from the 17th to the 26th of that month she also escorted the carrier Implacable and cruisers *Bellona* and *Mauritius* on similar attacks. The ship then spent November and December 1944 undergoing refit in Leith in preparation for service with the Eastern Fleet.

On completing refit in January 1945, *Volage* rejoined the 26th Flotilla and joined the Eastern Fleet at Ceylon, and on 24 February was part of the escort for the carriers *Empress* and *Ameer*, along with the cruiser *Kenya* and sister destroyers *Vigilant* and *Virago*, for Operation Stagey – an air photo reconnaissance mission in the Malacca Straits. She spent the rest of February and early March on anti-shipping sweeps and shore bombardment missions, on one occasion firing 100 4.7in shells into the railway works at Sigli, Sumatra. On 19 March, *Volage* was part of Force 70 and arrived at Stewart Sound by the Northern Andaman Isles in the Indian Ocean, where the group was to bombard shore batteries and enemy shipping.

However, *Volage* developed a fault in one of her condensers which put one of her shafts out of action, and as this restricted her manoeuvrability the ship remained outside the sound while *Saumarez* (Captain D) and *Rapid* went in and began their bombardment. The ships in the sound then came under heavy return fire from the six-inch gun shore batteries and *Rapid* was hit and lay dead in the water. As the *Saumarez* closed and began attempts to tow *Rapid* out of the sound *Volage* entered the sound and provided covering fire and began to lay a smokescreen to cover the withdrawal of the other destroyers. As she was making a hard turn she was hit by two shells, killing three crewmen and wounding several others, and the ship was temporarily out of control until the secondary steering was engaged and the ship managed to withdraw safely under cover of air patrols. HMS *Rapid* lost 17 men killed and 20 wounded. ➤

SPECIFICATION - AS V-CLASS DESTROYER	
Dimensions	Length: 363 feet, Beam: 35 ft 8 inches, Draught: 10 feet, Displacement: 1,806 tons standard, 2,091 tons full load.
Propulsion	2 x Admiralty 3-Drum boilers and geared turbines delivering 40,000shp to 2 shafts.
Speed/Range	37 knots.
Compliment	180 (225 in flotilla leader).
Firepower	4 x QF 4.7in Mk XII Guns in single mounts.
	2 x 40mm Bofors in Mk IV twin mount.
	6 x 20mm guns in two twin and two single mounts.
	2 x quadruple tubes for 21in Mk IX torpedoes.



HMS *Volage* (Right) in reserve at Portsmouth.

Volage proceeded to Simon's town and tied up alongside the cruiser *Cumberland* for repairs, and then rejoined Force 70. On 26 March, while on an anti-shipping sweep with *Saumarez*, *Virago* and *Vigilant* they came across a Japanese convoy of four ships escorted by two sub-chasers en route to Port Blair and proceeded to attack. Aircraft support arrived on the scene and the four ships of the convoy were sunk. *Volage* picked up 52 Japanese survivors from the convoy and returned to Trincomalee. In April 1945, the ship sailed to Durban and began a refit which lasted until June. During this refit a Type 291 warning radar was fitted as well as improved submarine detecting equipment. On completion of trials she rejoined the Flotilla and the East Indies Fleet. She did not rejoin the 26th Flotilla until July 1945 and so missed the successful action by her sister ships involved in the sinking of the Japanese cruiser *Haguro*.

Volage spent the rest of the war escorting the major units of the fleet and on 31 August, sailed with other ships of the Flotilla to re-occupy Penang. The ship stayed at Penang until September 1945 as radio ship until shore facilities had been established, before supporting the landings in Malaya. *Volage* then returned to Trincomalee and later took passage home to Portsmouth where she prepared for service in the Mediterranean. After leaving Portsmouth for Malta she joined the 3rd Destroyer Flotilla in the Mediterranean Fleet, where she was to become involved in the famous 'Corfu Incident'.

In May 1946, two Royal Navy cruisers, the *Orion* and *Superb*, were crossing the Corfu Channel when they came under fire from gun batteries on the coast of Albania. Although the ships received no damage Britain demanded an apology and explanation as to why the ships were attacked in International waters. The Albanian government claimed that the British ships had trespassed into their territorial waters and gave no such apology.

This set the scene for the second incident. On 22 October, the Royal Navy sent the cruisers *Mauritius* and *Leander*, accompanied by the destroyers *Saumarez* and *Volage*, northward through the Corfu Channel to test the right of innocent passage and enforce Britain's claim that the strait was in International Waters. The Flotilla entered the channel with *Mauritius* leading accompanied by *Saumarez*, with *Leander* and *Volage* about a mile behind. The ships had orders to return fire if attacked.

At approximately 3pm they were passing close to the Albanian coast near the bay of Saranda when the destroyer HMS *Saumarez* hit a mine which impacted just forward of the bridge on the starboard side, causing severe damage to her bow. *Saumarez* came to a dead stop and began to drift, her bow section on fire before it settled in the water. *Volage* was ordered to close and tow the *Saumarez* south to Corfu. At the first attempt the line parted, but after securing a new tow at 3.30pm the *Volage* began to tow *Saumarez* out in worsening weather.

At approx 4.15pm the *Volage* herself hit a mine and the whole forecastle from A Gun forward completely disappeared. Large fragments of metal were hurled into the air, some landing back on the ship. The Albanian coastal batteries did not fire during the incident and at one point an Albanian naval vessel was seen in the area flying a white flag.

Although both ships had now had their bows blown off they were still afloat, and *Volage* managed to continue the tow, reaching the safety of Corfu Harbour 12 hours later. *Saumarez* had suffered 36 killed and *Volage* another eight men, with many more injured. After inspection, it was found that the *Saumarez* was beyond repair. She was taken to Malta and in October 1950 scrapped, her days in the Royal Navy over. It was a sad end to a ship that had been involved in the sinking of the German battle cruiser *Scharnhorst* and later the Japanese cruiser *Haguro* in May 1945.

HMS *Volage* however was repaired at Malta before returning to the United Kingdom, arriving at Portsmouth on 17 May 1949 and placed in reserve. There was to be a third and final incident with Albania when in November 1946 the Royal Navy carried out 'Operation Retail' – an operation to sweep the channel of all moored mines. The force was covered by an aircraft carrier as well as cruisers in case of attack. Twenty-two mines were discovered and two were sent to Malta for analysis, where it was found the mines were of German

SPECIFICATION - AS TYPE 15 A/S FRIGATE	
Dimensions	Length: 358 Feet, Beam: 37 ft 9 inches, Draught: 14 ft 6 inches, Displacement: 2,337 tons standard.
Propulsion	2 x Admiralty 3-Drum boilers and geared turbines delivering 40,000 shp to 2 shafts.
Speed	31 knots
Compliment	174.
Firepower	1 × twin Mk 19 4in gun
	1 × twin 40mm Bofors Mk.5
	2 × Squid A/S mortars
	2 × Limbo Mark 10 A/S mortars

origin but had only been recently laid. Albania denied laying the mines and when Britain demanded compensation refused to pay. The case went to the International courts of Justice where it was ruled in Britain's favour, (although the mine clearance operation was deemed to be illegal) and Albania was ordered to pay the sum of £843,947 compensation. When Albania refused to pay, Britain retaliated by withholding gold bullion which had been awarded to Albania after the war but not yet delivered. Only in 1996 was this finally handed over after an agreement was reached.

Meanwhile the *Volage*, having been in reserve at Portsmouth since 1949, was about to be given a new lease of life. For some time, the Royal Navy had been concerned by the rapid advances made in submarine design and performance since the end of the Second World War. The Russians in particular were building Whiskey-class submarines whose underwater speed of 25 knots rendered all but the most modern escort vessels obsolete. The Royal Navy had begun designing new fast anti-submarine vessels such as the Type 12 and Type 14 frigates but it would be some time before they could be built and even then not in enough numbers to combat the threat. However, the Navy did have a fleet of fast destroyers that had been built in wartime and had seen relatively little service. It was decided that if these ships were re-armed with modern weapons they would make effective anti-submarine vessels and would fill the gap until more modern units could be built. The conversions would be of two types:

HMS *Volage* after hitting a mine 1946.

TYPE 15 (FULL)

The ships were to be stripped of all superstructure, masts and weapons down to the basic hull and funnel, and all main machinery overhauled. The hull plating was extended aft from the forecastle back to the quarterdeck and a new fully-enclosed bridge fitted which included new operations and sonar rooms. The ships were to be equipped with two Mk 10 LIMBO Three barrel anti-submarine mortars on the quarterdeck aft along with associated projectile handling rooms. However, financial constraints meant that many of the early conversions were fitted with the older 'SQUID' mortar instead. New lattice masts would carry more modern radars and communications equipment. Main armament comprised a twin 4in gun mounted aft of the mainmast, and a twin 40mm Bofors behind the bridge.

Three ships of this type (*Troubridge*, *Ulster* and *Zest*) were fitted with a new 'Leopard' type bridge which became the prototype used on subsequent frigate designs.

TYPE 16 (LIMITED)

This conversion was much simpler than the type 15. Existing armament was removed and replaced by a twin 4in gun at 'B' mounting, and several 40mm. Two 'SQUID anti-submarine mortars and a handling room were fitted aft and torpedo tubes added.

In 1952, HMS *Volage* found herself back at J. S. Whites in Cowes where she had been built for conversion into a Type 15 Frigate. Her pennant number was changed to F41. In 1954 the ship joined the 3rd training squadron before being paid off into reserve at Portsmouth in 1956. *Volage* was never to re-commission, spending time in reserve at Rosyth in 1960 before becoming a harbour training ship for the Royal Marines at Portsmouth in 1964.

From 1966-1972, the ship was again laid up at Portsmouth. Placed on the disposal list, *Volage* was sold on 28 October 1972 to Pounds ship breakers of Portsmouth for breaking up, and she was towed to her final resting place right next to the bridge of the M275 Motorway into Portsmouth. Her hulk could be seen for many years afterwards until finally the last traces of a once proud veteran had disappeared.

POSTSCRIPT:

On 2 November 2009, a team of American and Albanian researchers announced that they had found what they believe to be the original bow section of HMS *Volage* in the Corfu Channel in approximately 150 feet of water. Ammunition, crockery and items of clothing were also found in the area but not touched. The site was treated as a war grave and the British Government notified. ■

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Engin de Debarquement Amphibie Rapide (EDA-R)

SPECIFICATION	
Dimensions	Length 98.4ft., Beam 42ft., Draught 8.1ft., Surface displacement 285 tons.
Propulsion	4x MTU Friedrichschafen 12V200 M92 diesel engines producing 1,636hp and 4x Wartsila pump-jets.
Speed/Range	Speed 30 knots, 35mph., Range 1,043nm, 1,200 miles.
Compliment	1,360.
Firepower	2x 12.7mm Heavy Machine Guns (HMGs).
	2x 7.62mm Medium Machine Guns (MMGs).

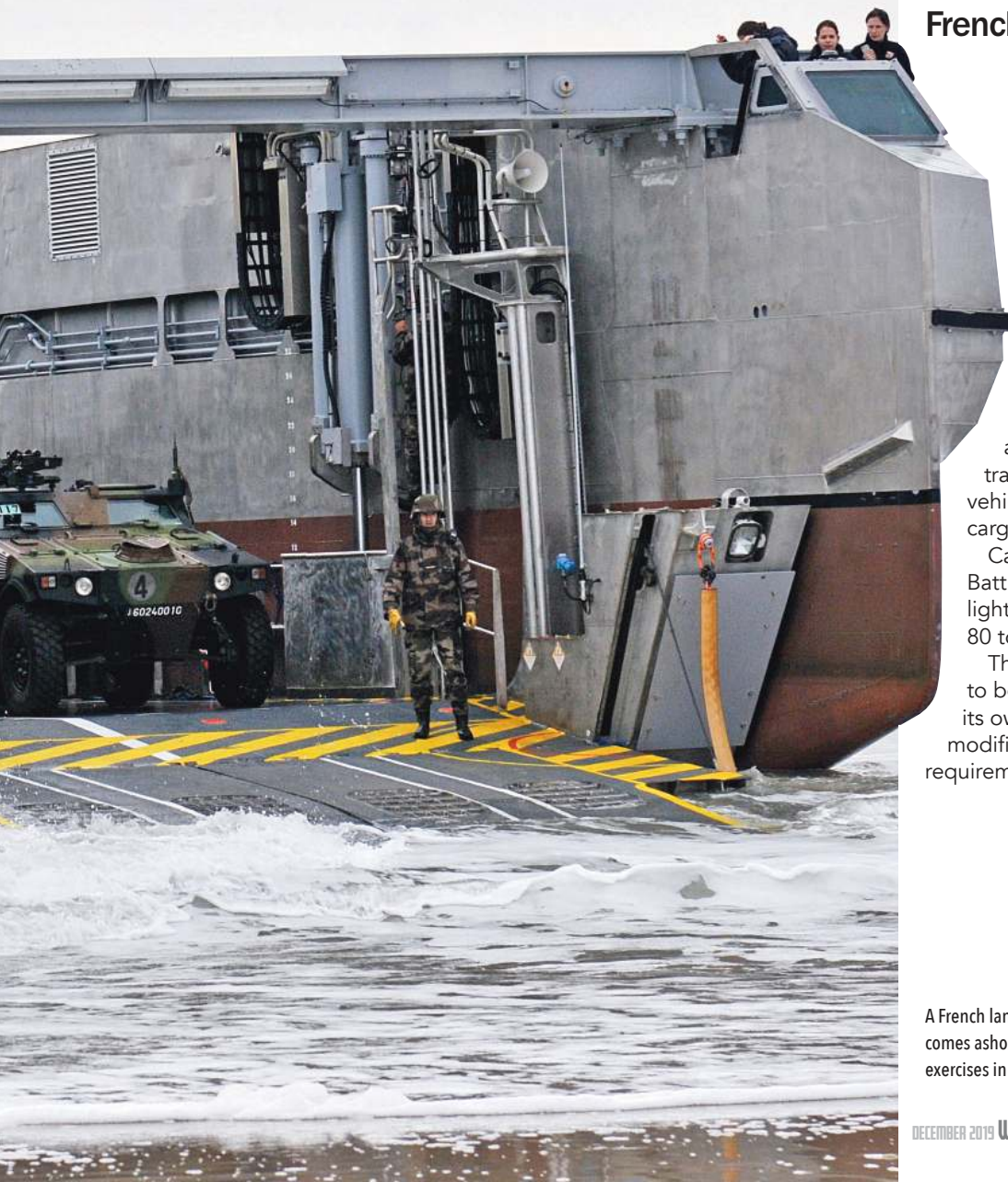
One of four in class amphibious assault landing craft built for the French Navy.

The catamaran style hull was used to allow shallow water operation and the craft were categorised as Roll On/Roll Off Catamaran Landing Craft or (L-CAT).

Built by Socarenam of France and in service with the French Navy in 2011. They were designed to operate with the French Navy's Mistral-class amphibious assault ships – transporting tanks, armoured vehicles, war supplies, infantry and cargo to the shoreline.

Capable of carrying three Main Battle Tanks (MBTs), plus three light-armoured vehicles and up to 80 tons of cargo.

The United States Army was said to be considering the L-CAT for its own use – although it would be modified to suit the army's specific requirements. ■



A French landing craft comes ashore during exercises in 2012.

Sang-O-class

NORTH KOREA

It is not known how many are still in service with the North Korean Navy, but one of the 40+ Sang-O-class of submarines was captured by the Republic of Korean Navy (South Korea) when it ran aground, in what became known as the 1996 Gangneung submarine infiltration incident.

The submarines were built at the Bong Dao Bo Shipyards and the first one was put in service during 1991.

These fairly basic (by modern standards) craft were used as attack/coastal patrol submarines and could be utilised for mine-laying and reconnaissance work.

They weren't particularly quick either with a top speed submerged of some nine knots. Although with such a large number built, they still warranted a modicum of respect from other more modern fleets.

The 1996 Gangneung incident occurred when one of the class of submarines ran aground on 18 September while spying close to Gangneung. With the enemy forces abandoning the submarine, an operation was launched by the South Koreans to capture them and the submarine and during the operation, 12 South Koreans lost their lives as did 24 North Koreans, although one was captured alive along with the submarine. The captured submarine is on display near Gangneung. ■

A Sang-O-class submarine captured by South Korea on display near Gangneung. CC BY-SA 3.0

s submarines

SPECIFICATION	
Dimensions	Length 111.5ft., Beam 12.45ft., Surface displacement 255 tons, submerged 370 tons.
Propulsion	Diesel-electric unit driving one shaft.
Speed/Range	7.5 knots (9mph) surfaced, 9 knots (10mph) submerged./1,500nm, 1,740 miles.
Compliment	15.
Firepower	2x 533mm torpedo tubes with Russian made 53-65KE torpedoes.

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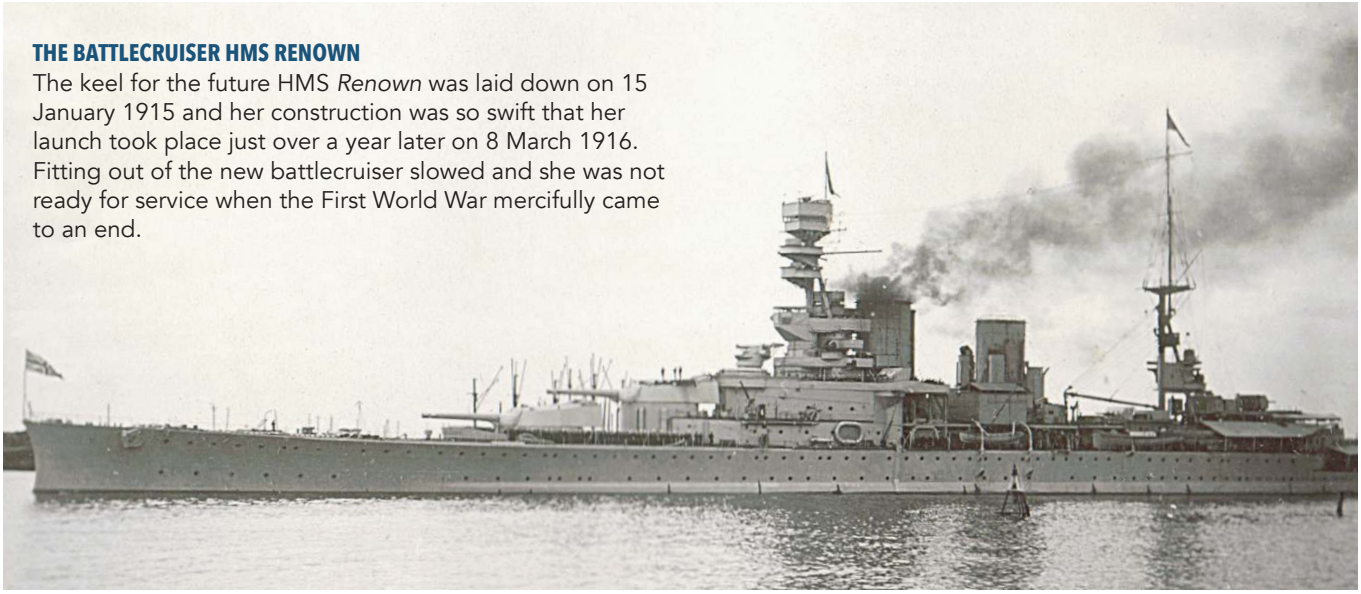


THE BATTLECRUISER HMS RENOWN

The keel for the future HMS *Renown* was laid down on 15 January 1915 and her construction was so swift that her launch took place just over a year later on 8 March 1916. Fitting out of the new battlecruiser slowed and she was not ready for service when the First World War mercifully came to an end.

ITALIAN MIDGET

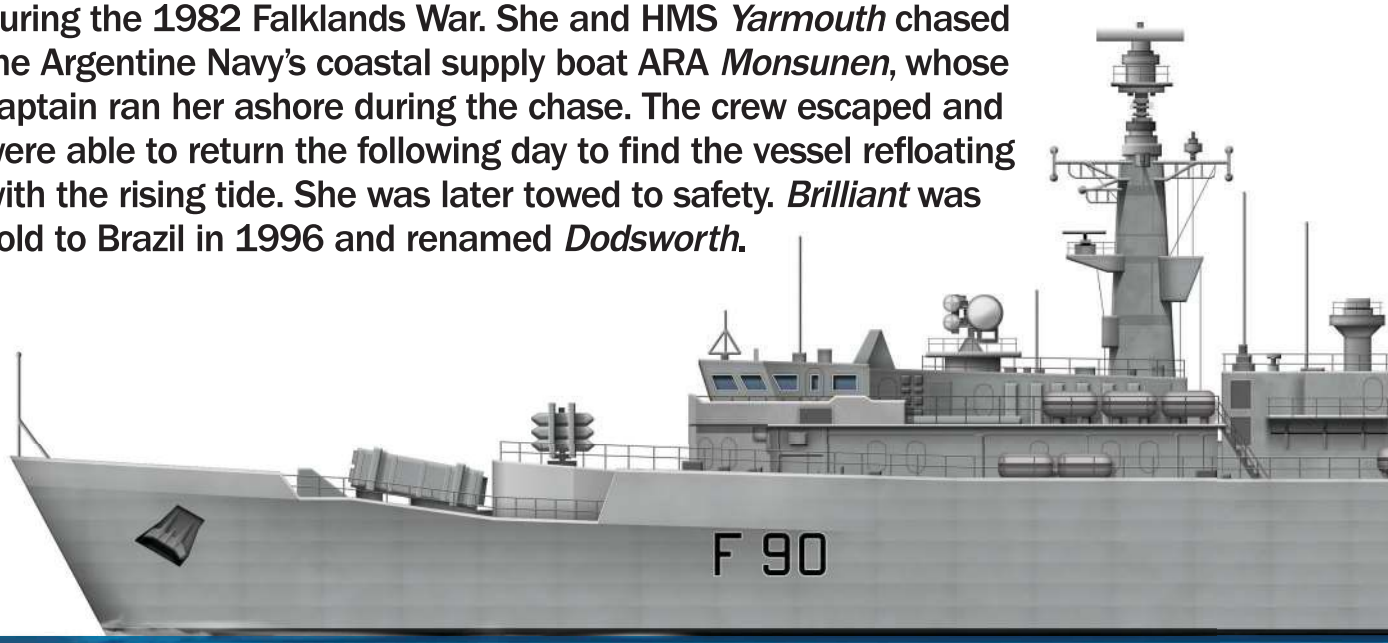
A unique means of underwater attack during the Second World War was conveyed in the Italian Navy's truly exceptional Siluro a Lenta Corsa (SLC), 'Slow moving torpedo', from the Regia Marina's famed Decima Flottiglia MAS (10th Light Flotilla), the renowned 'Decima MAS', specifically its SLC Serie 200 craft from the most numerous, and incidentally most successful version of this unique Italian manned-torpedo, popularly and better known by their lumbering responsive nature their two-man crews bestowed upon them, 'Maiale' (Hog - Pig), because of their difficult handling.

HMS BRISTOL – TYPE 82 CLASS DESTROYER

The type 82 destroyers were to have been a class of up to eight ships following on from the County-class and incorporating the new weapons systems that were then coming into service. They were envisaged as fleet escorts for the new CVA 01 aircraft carriers that were projected to come into service in the 1970s. With the cancellation of CVA 01 in the 1966 Defence review, the requirement for the escort ships disappeared and they were cancelled. However, one ship, *Bristol*, was completed, as it was thought it would be useful as a trials ship for four new weapons and electronic systems.

HMS F90 BRILLIANT

The Type 22 frigate took part in the only ship-to-ship conflict during the 1982 Falklands War. She and HMS *Yarmouth* chased the Argentine Navy's coastal supply boat ARA *Monsunen*, whose captain ran her ashore during the chase. The crew escaped and were able to return the following day to find the vessel refloating with the rising tide. She was later towed to safety. *Brilliant* was sold to Brazil in 1996 and renamed *Dodsworth*.



1977

Laid down on 25 March and built by Yarrow Shipbuilders, Glasgow.

1978

HMS *Brilliant* was launched on 15 December.

1981

Commissioning took place on 15 May.

1982

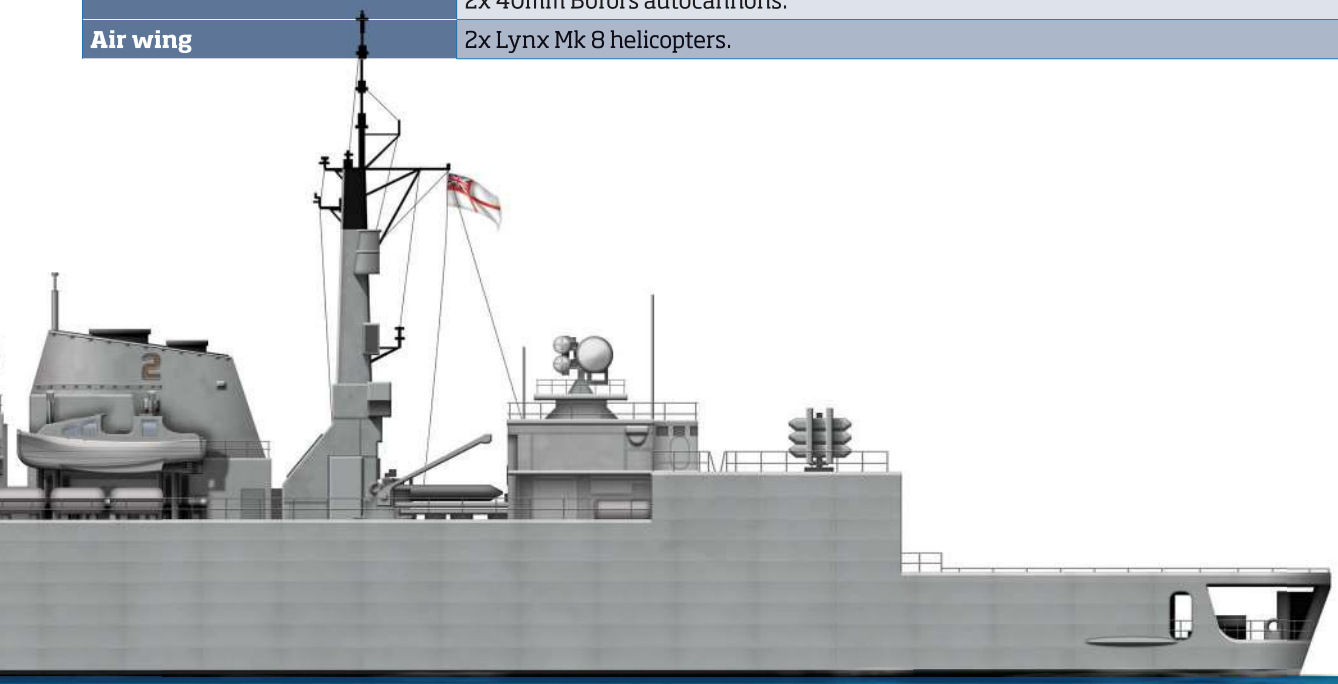
During the Falklands War, *Brilliant* was the first RN warship to fire the Sea Wolf missile in action, when she shot down three A-4 Skyhawks. *Brilliant* received minor damages in an air attack during May and in the same month, she rescued 24 survivors from the *Atlantic Conveyor* which had been hit by two Exocet missiles.

1987

Brilliant became the leader of the 2nd Frigate Squadron.

The frigate HMS *Brilliant* (F90) in 1995, the following year, she was sold to Brazil and renamed *Dodsworth*

SPECIFICATION	
Dimensions	Length 430ft., Beam 48ft., Draught 20ft., Surface displacement 4,400 tons.
Propulsion	2x Rolls-Royce Olympus TM3B gas turbines and 2x Rolls-Royce Tyne RM1C gas turbines and 2x shafts.
Speed	18 knots, 21mph.
Complement	222.
Firepower	2x 6 GWS25 Seawolf surface-to-air (SAM) missile launchers.
	4x Exocet surface-to-surface (SSM) missile launchers.
	2x 40mm Bofors autocannons.
Air wing	2x Lynx Mk 8 helicopters.



1990

HMS *Brilliant*, saw the first members of the Women's Royal Naval Service to serve officially on the operational warship.

1991

Deployed to the Persian Gulf, as part of Operation Granby Task Force – a British military operation during the 1991 Gulf War.

1994

The warship was the star of the BBC documentary called *HMS Brilliant – In a Ship's Company.*

1996

Decommissioned from the Royal Navy and sold to the Brazilian Navy on31 August and renamed *Dodsworth*.

2012

Sold for scrap in Turkey during the July.

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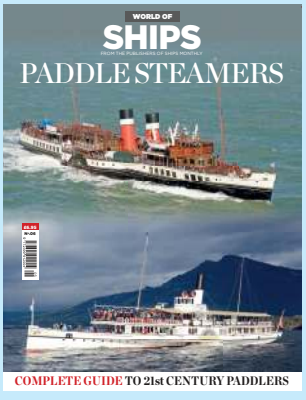

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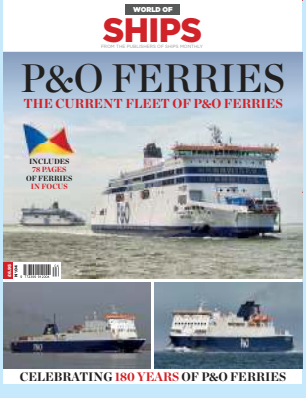

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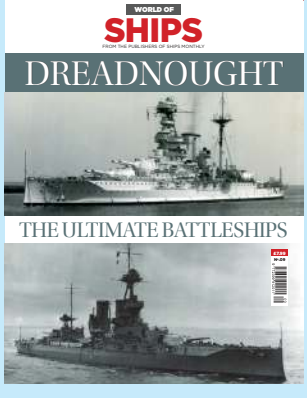

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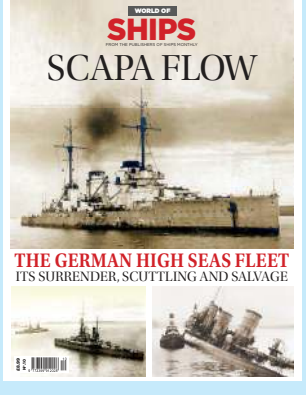

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